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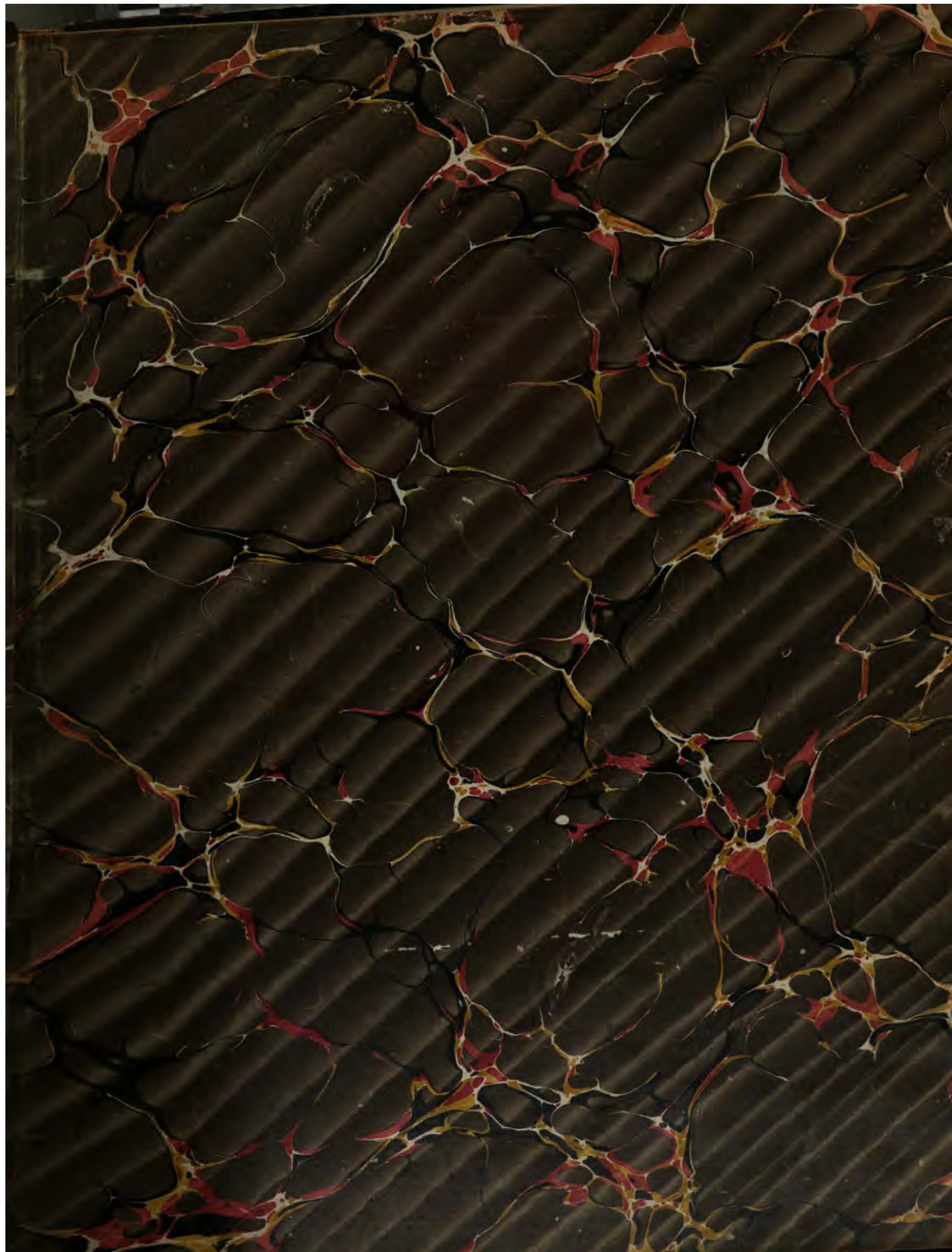


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**APPLICATIONS**

**DE LA**

# **GÉOMÉTRIE DESCRIPTIVE**

**AUX OMBRES, A LA PERSPECTIVE, A LA GNOMONIQUE ET AUX ENGRENAGES.**



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PARIS.—IMPRIMERIE DE FAIN ET THUNOT,  
Rue Racine, 28, près de l'Odéon.

# APPLICATIONS

DE LA

# GÉOMÉTRIE DESCRIPTIVE

AUX OMBRES, A LA PERSPECTIVE, A LA GNOMONIQUE ET AUX ENGRENAGES.

PAR THÉODORE OLIVIER,

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ANCIEN RÉPÉTITEUR A L'ÉCOLE POLYTECHNIQUE;  
PROFESSEUR DE GÉOMÉTRIE DESCRIPTIVE AU CONSERVATOIRE ROYAL DES ARTS ET MÉTIERS;  
PROFESSEUR-FONDATEUR DE L'ÉCOLE CENTRALE DES ARTS ET MANUFACTURES;  
MEMBRE DE LA SOCIÉTÉ PHILOMATHIQUE DE PARIS ET DU COMITÉ DES ARTS MÉCANIQUES DE LA SOCIÉTÉ D'ENCOURAGEMENT POUR L'INDUSTRIE NATIONALE;  
MEMBRE ÉTRANGER DES DEUX ACADÉMIES ROYALES DES SCIENCES ET DES SCIENCES MILITAIRES DE STOCKHOLM;  
MEMBRE CORRESPONDANT DE LA SOCIÉTÉ ROYALE DES SCIENCES DE LIÈGE;  
DES ACADÉMIES DE METZ, DIJON ET LYON;  
CHEVALIER DE LA LÉGION D'HONNEUR ET DE L'ORDRE ROYAL DE L'ÉTOILE POLAIRE DE SUÈDE

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**ATLAS.**

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PARIS.

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LIBRAIRES DES CORPS ROYAUX DES PONTS ET CHAUSSEES ET DES MINES,

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1847

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Pl. N° 1.

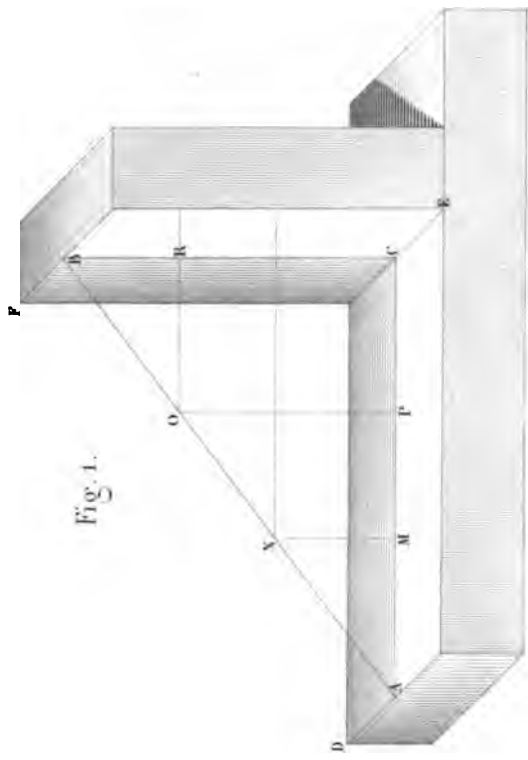


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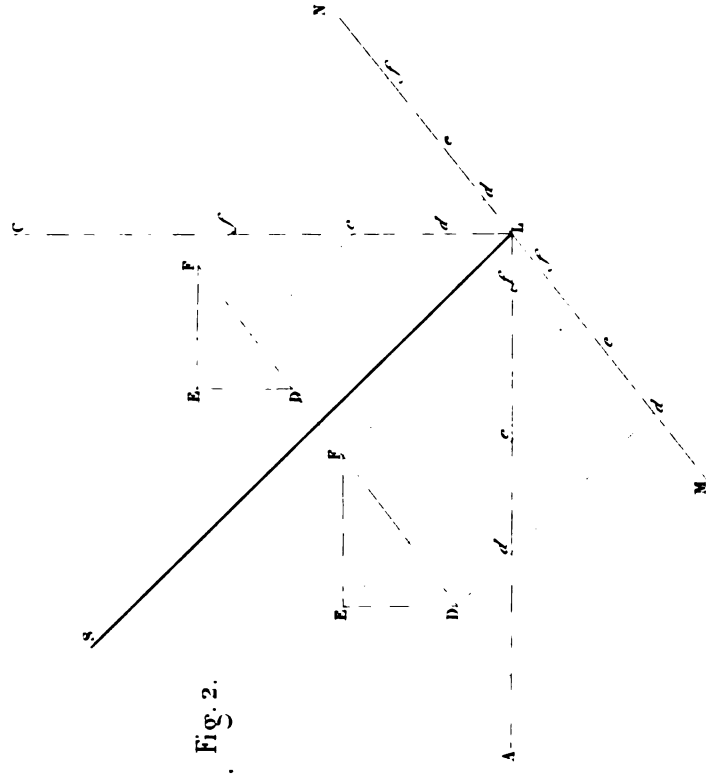


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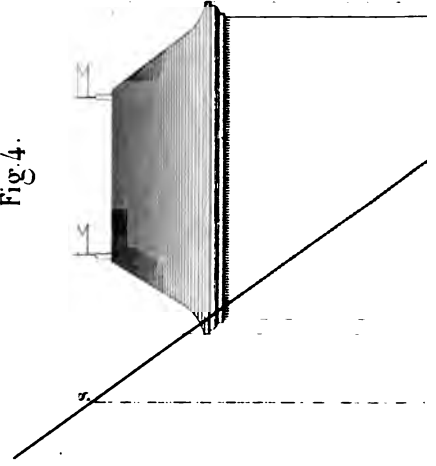


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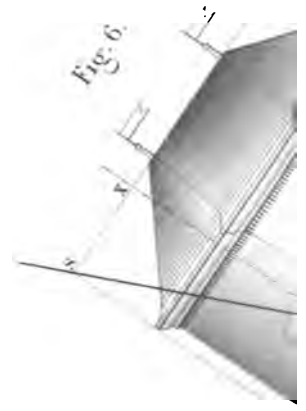
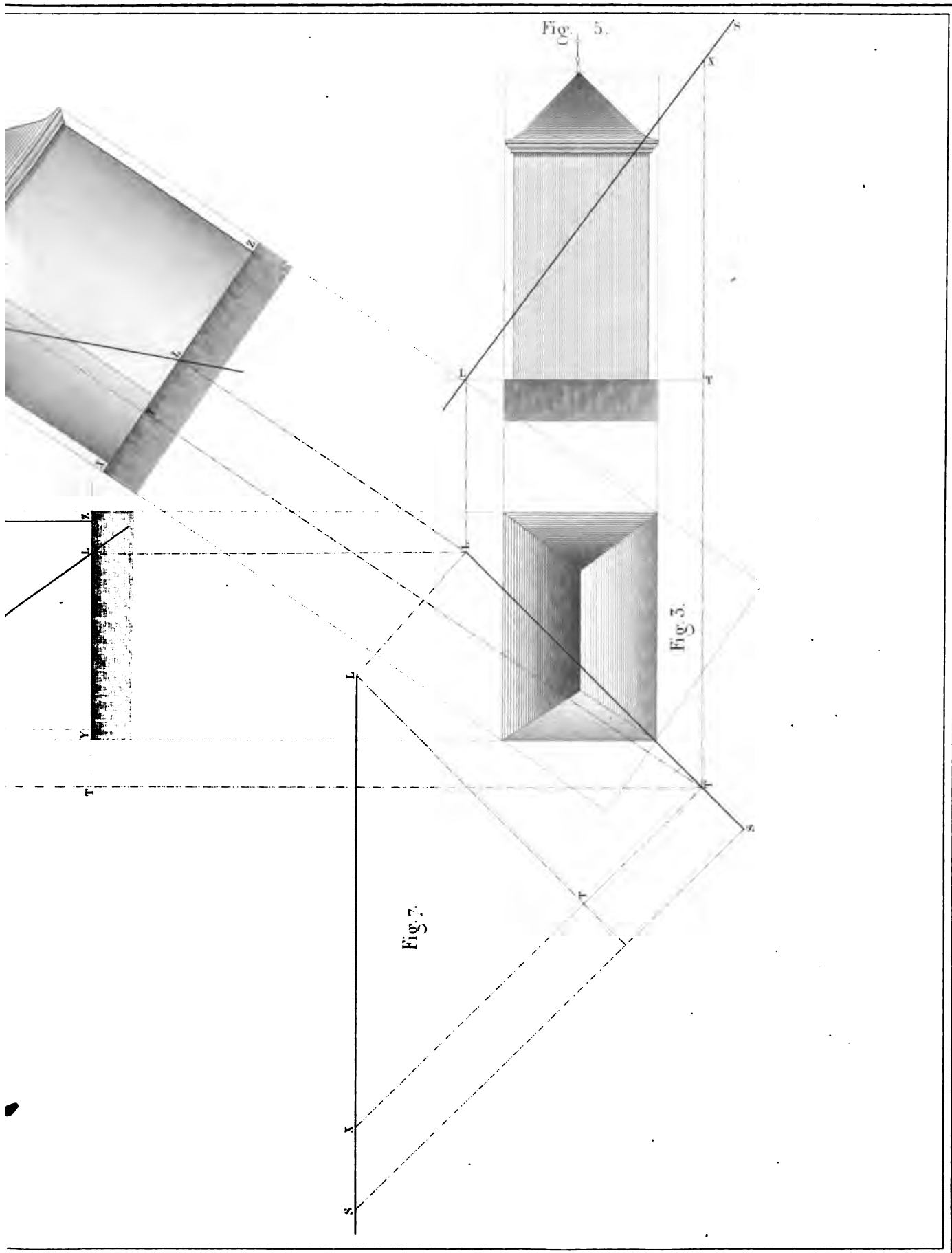


Fig. 6.



*Le maître sc.*

*D'après les Dessins faits à l'Ecole du Génie à Metz.*







Fig. 14-a)

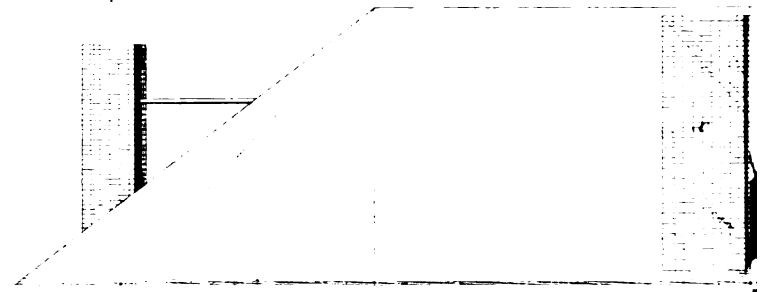


Fig. 13-a)

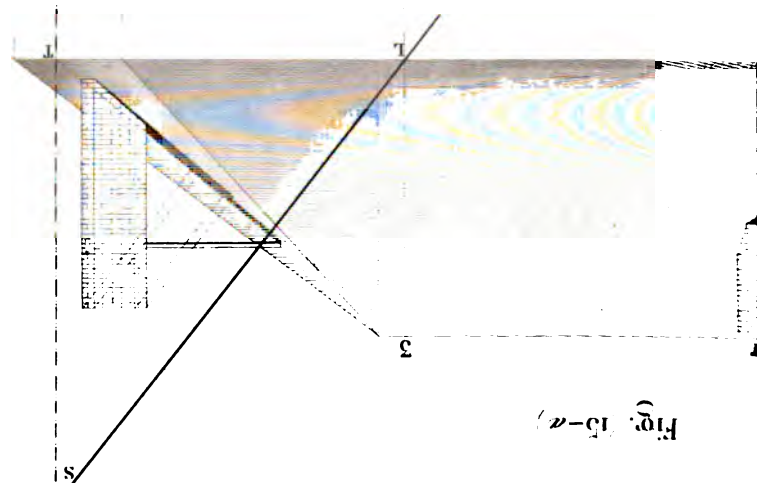
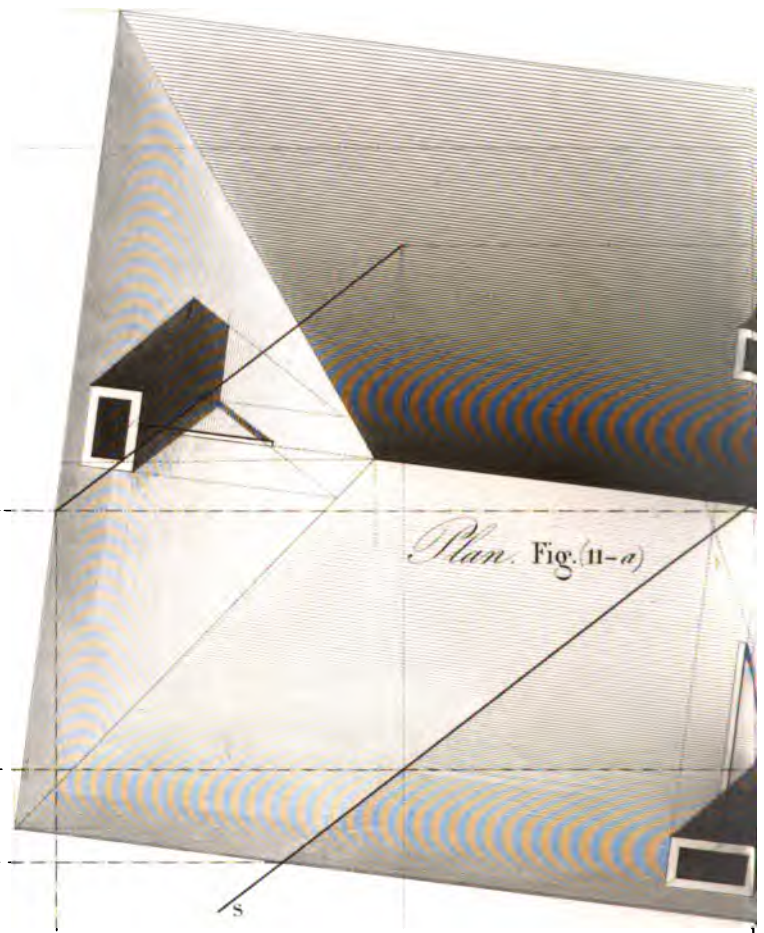
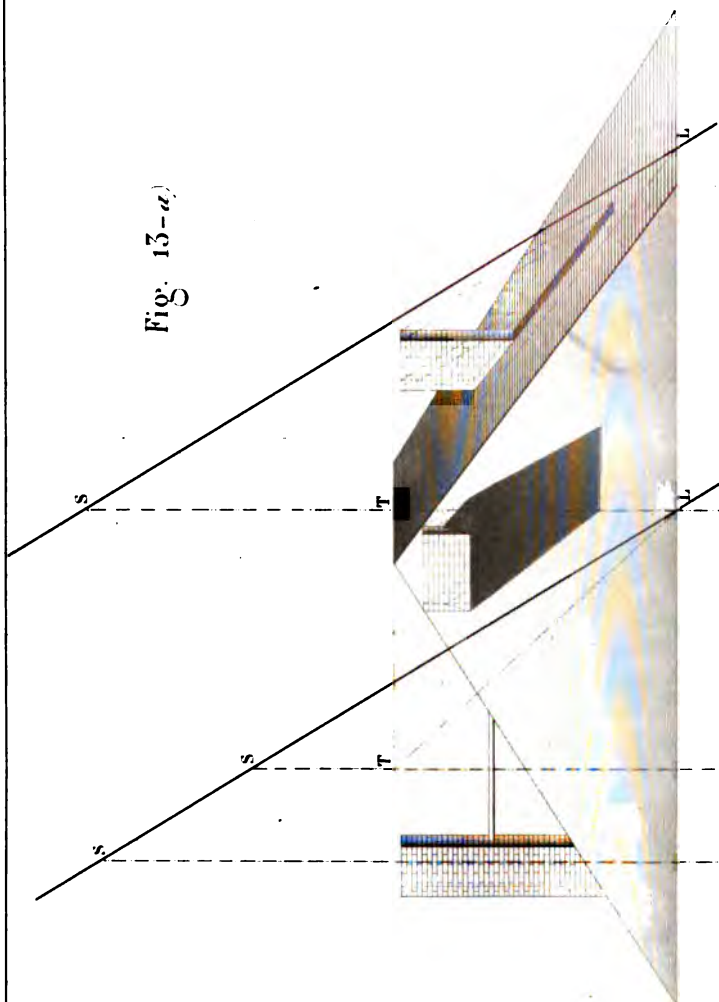


Fig. 15-a)

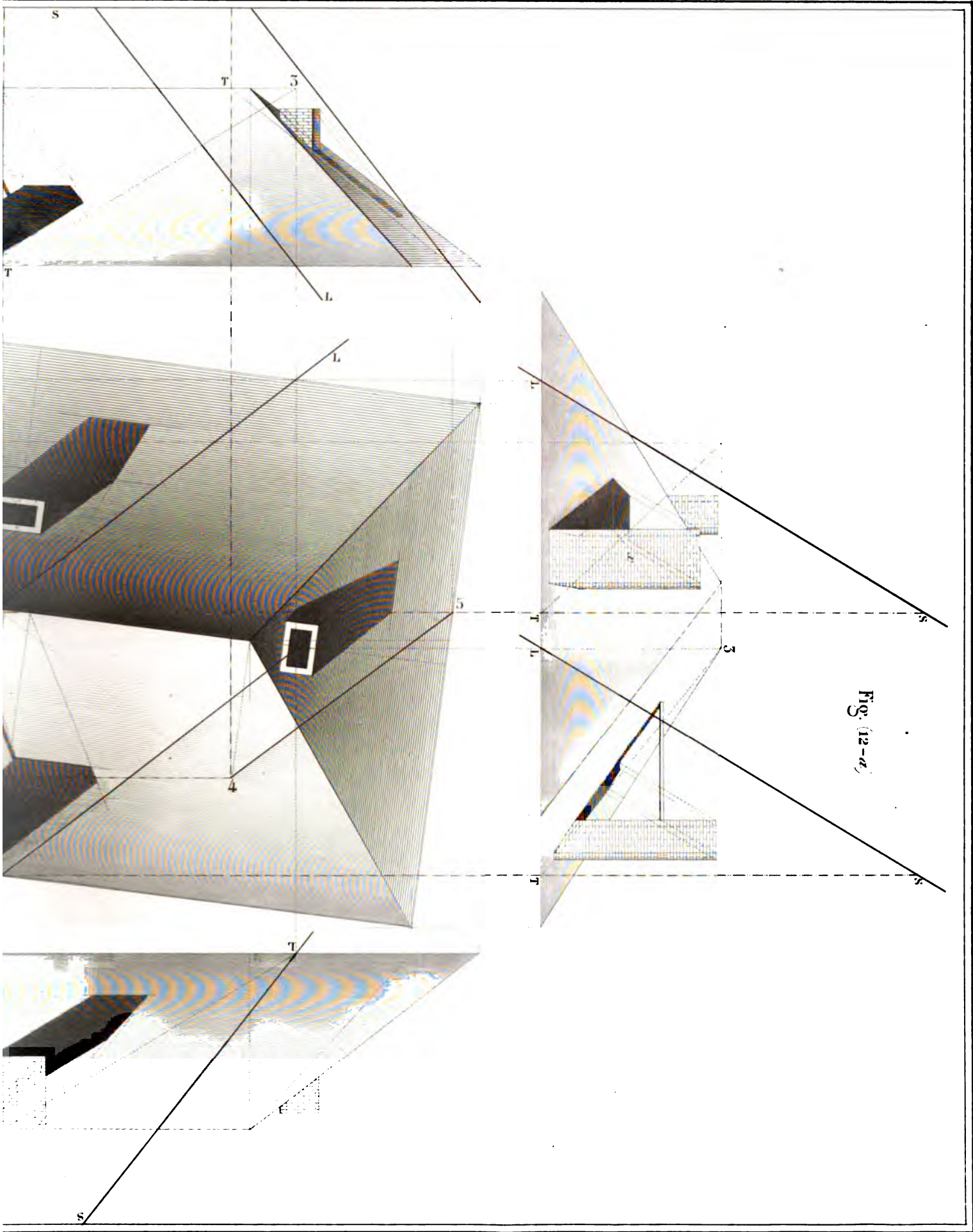


Fig. (12-a)

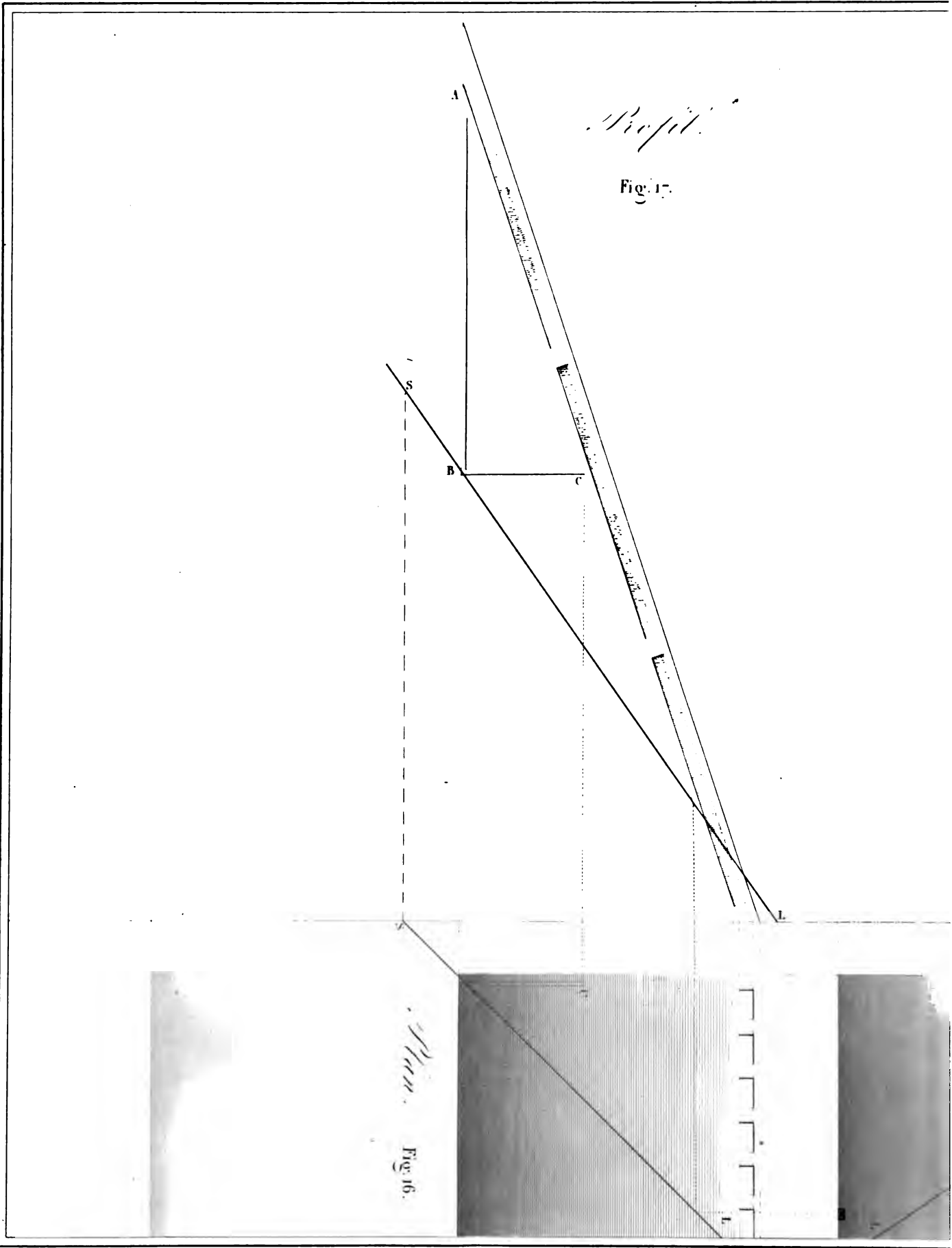






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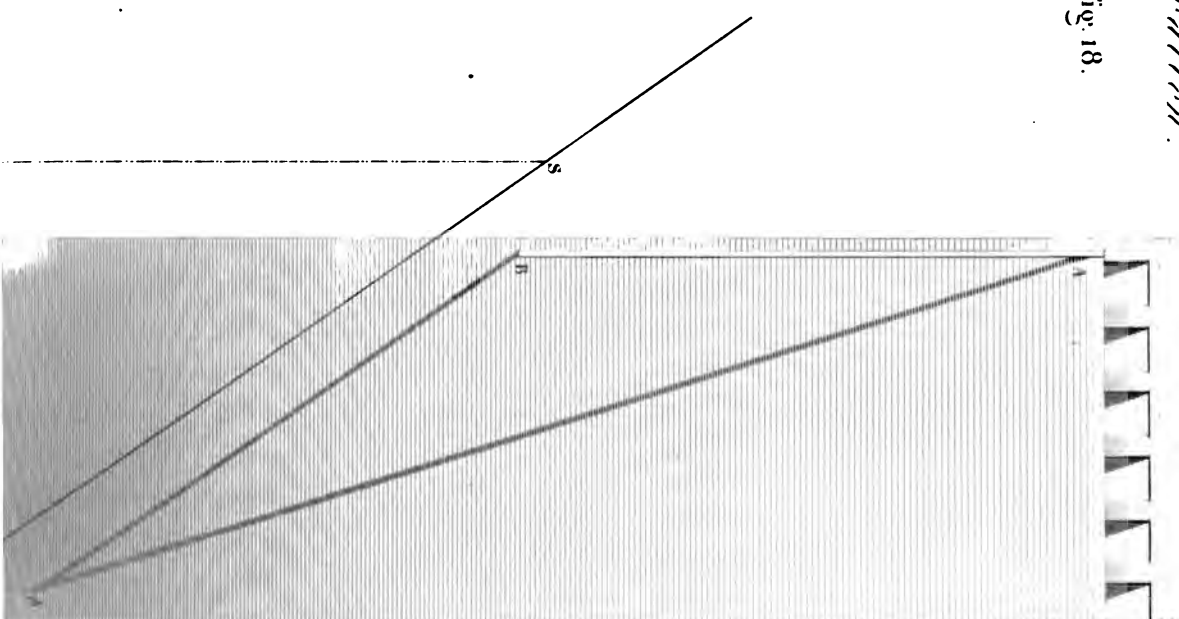
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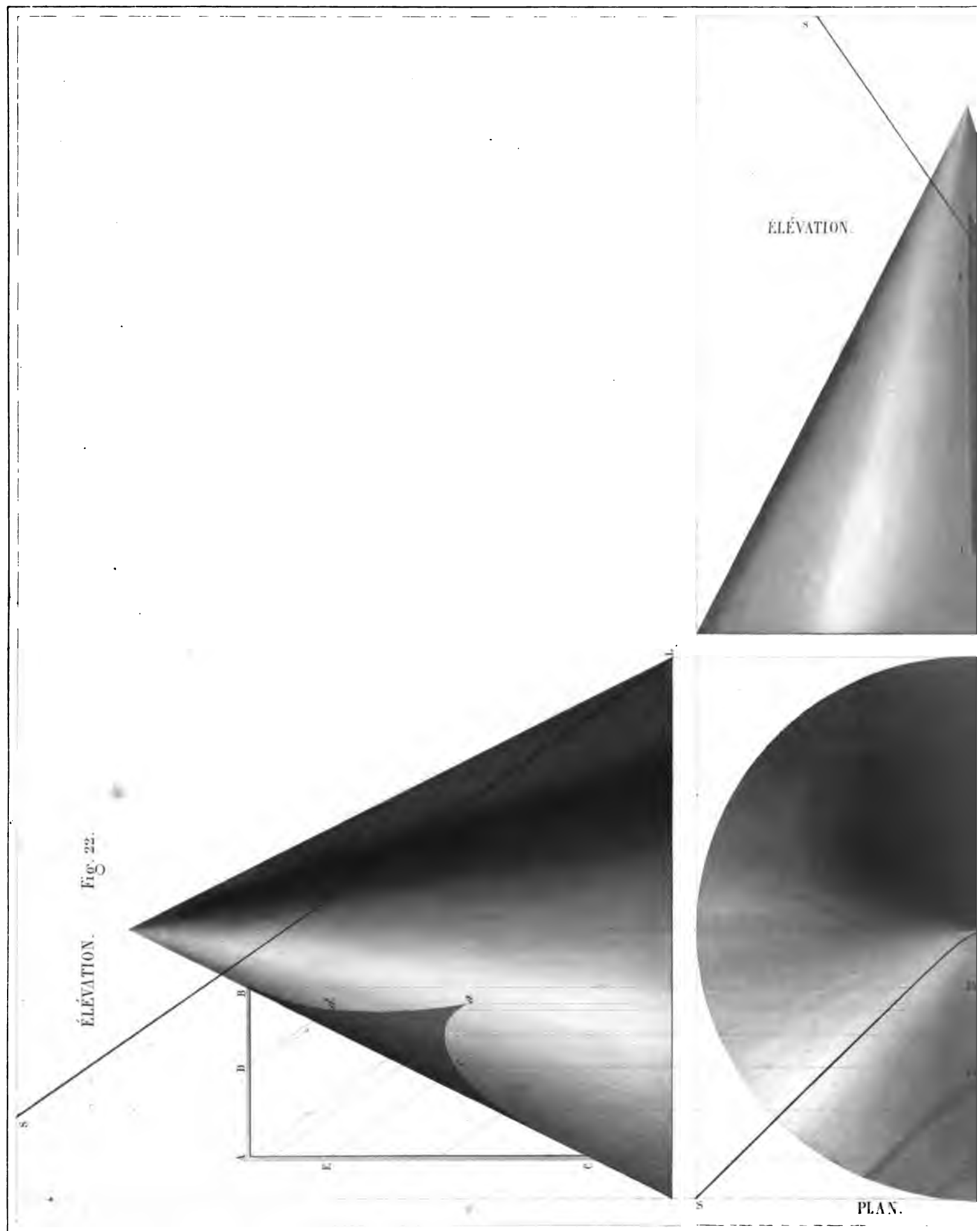
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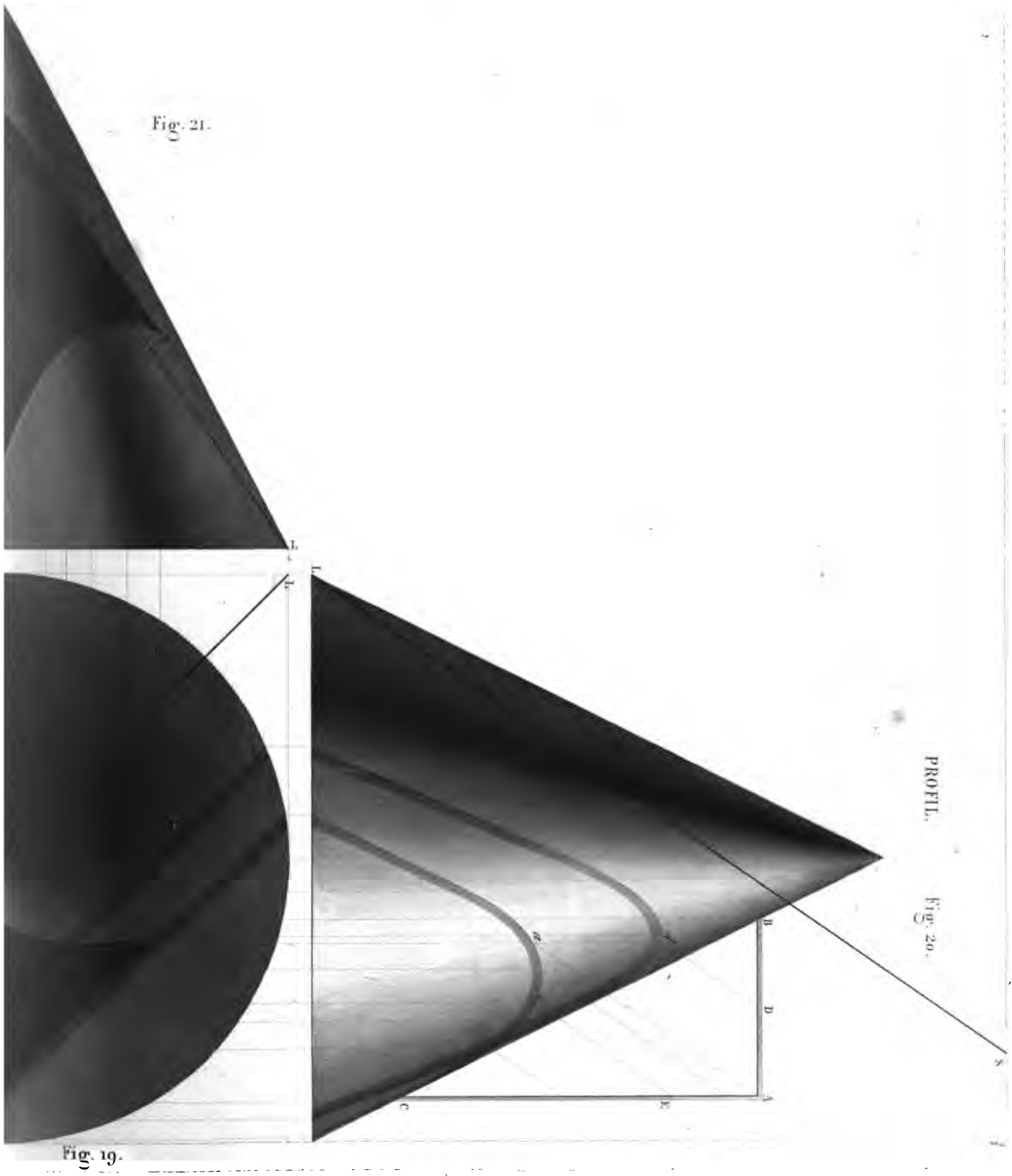
















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Fig. 25.

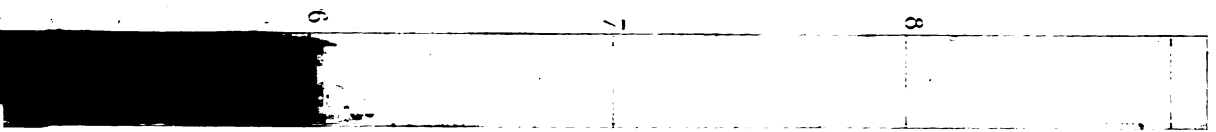


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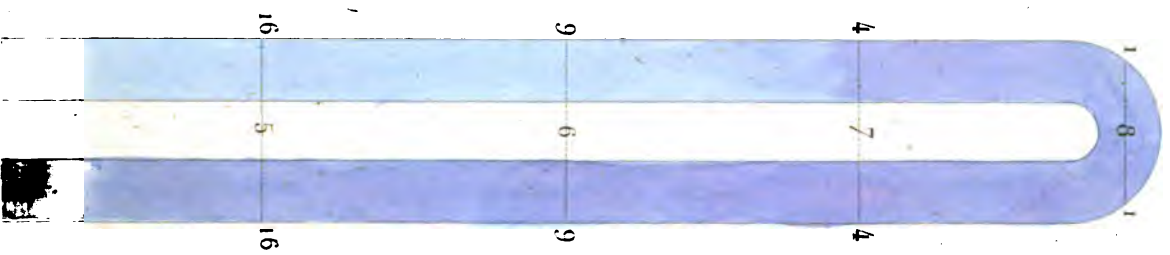
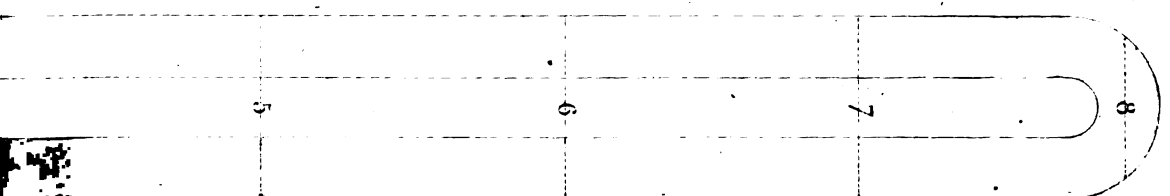


Fig. 25.



Fig. 26.

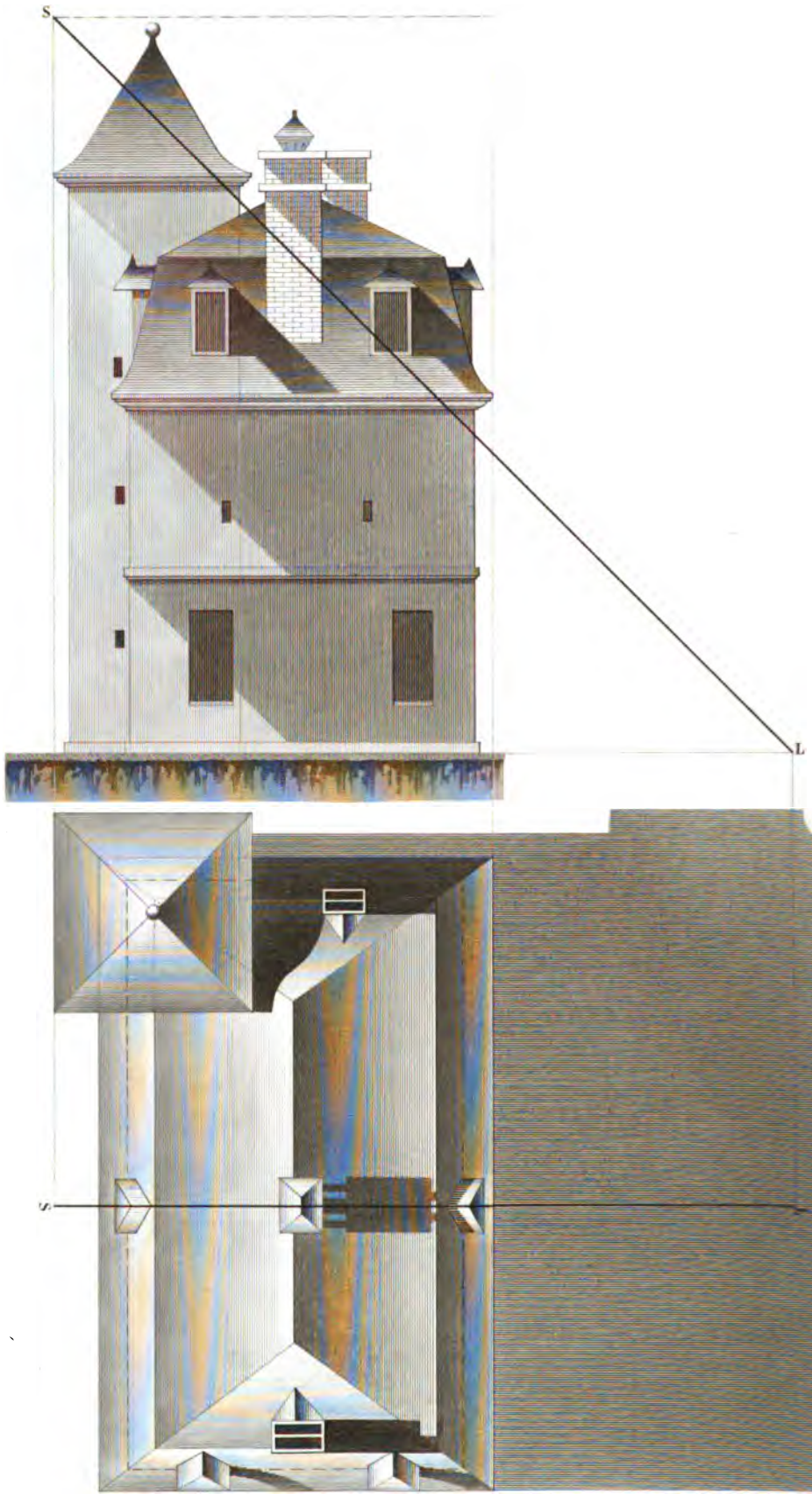








D'après les plans, faite à l'échelle de 1 toise à Paris.

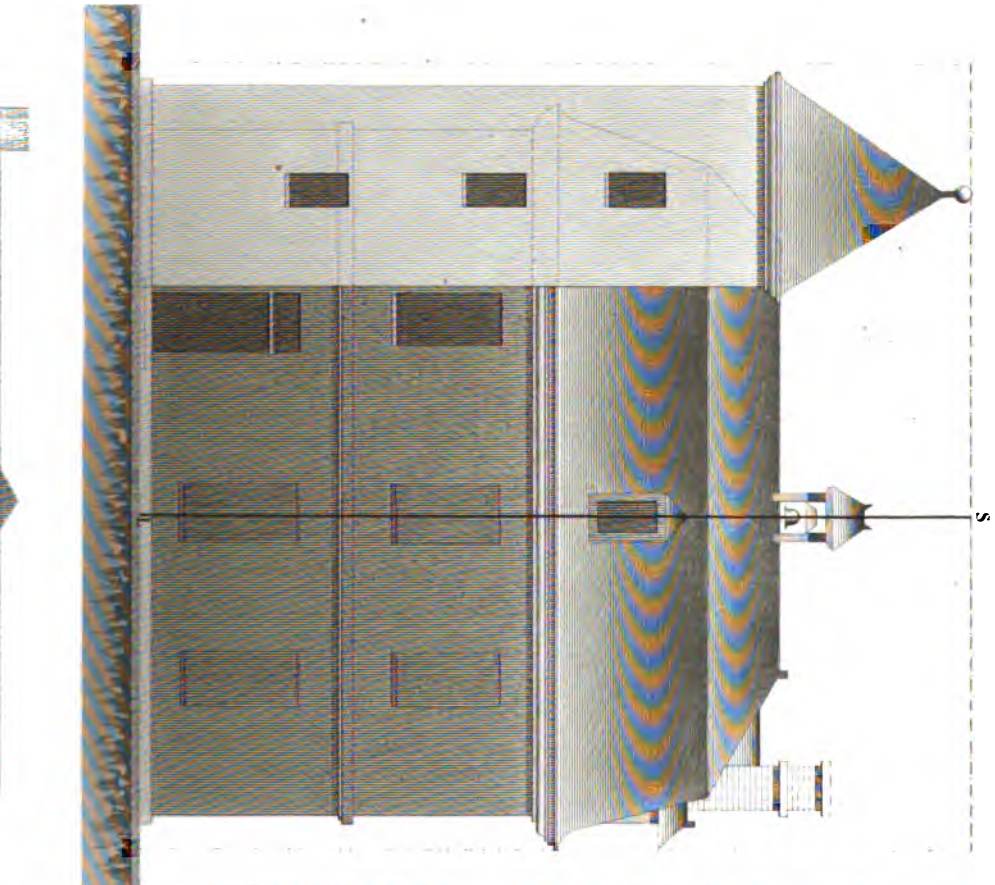


Echelle de 10 toises.



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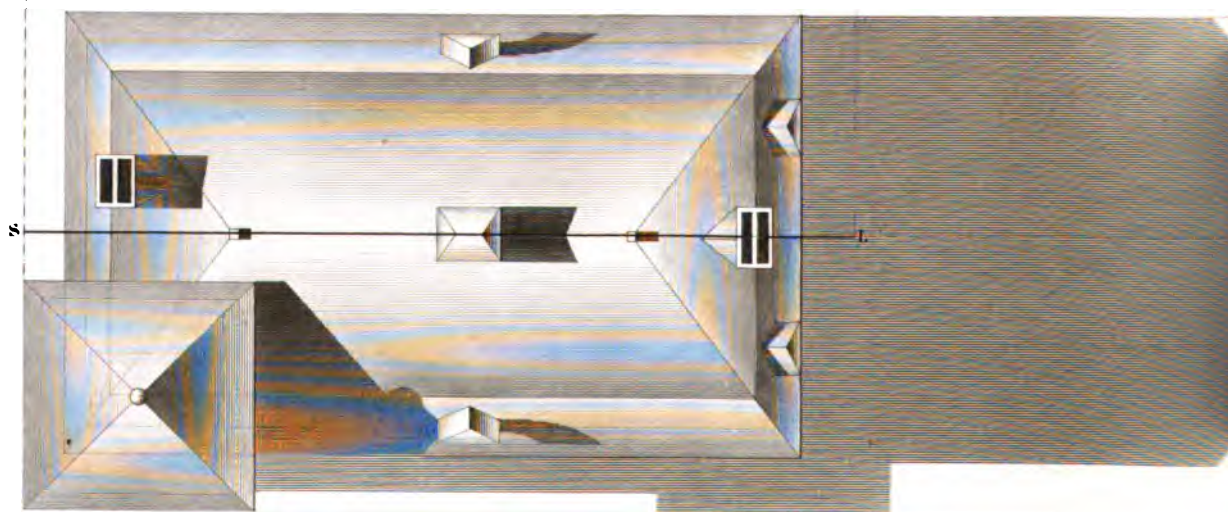
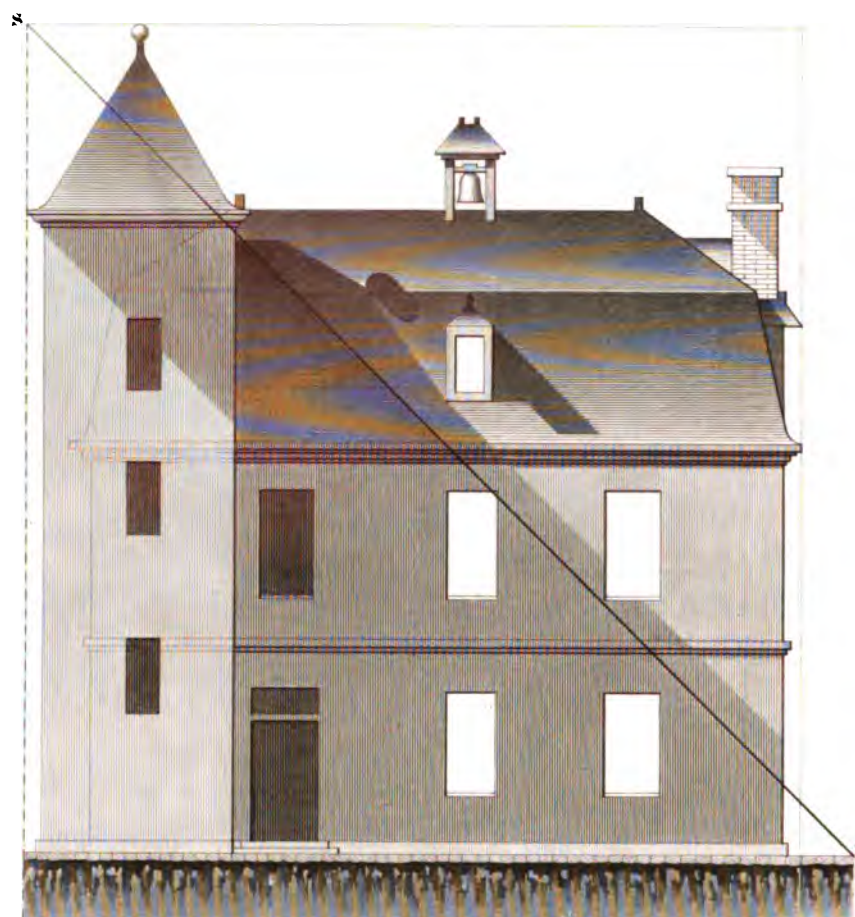
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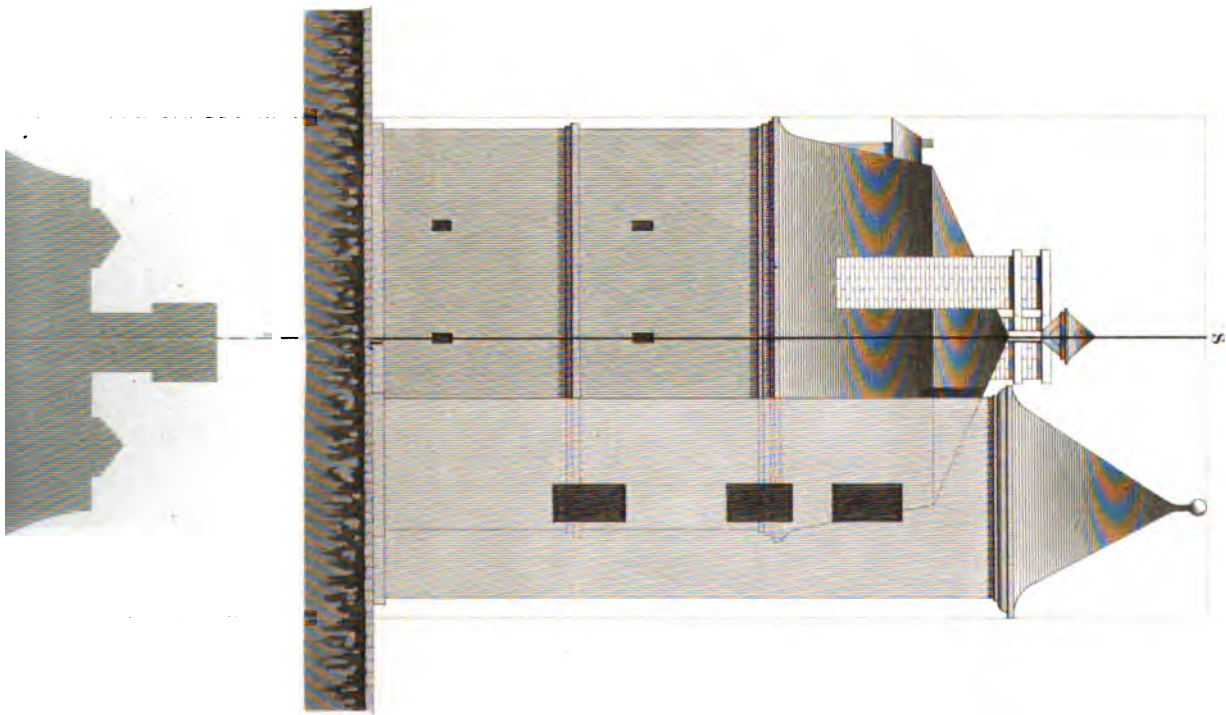








*Echelle de 10 toises.*







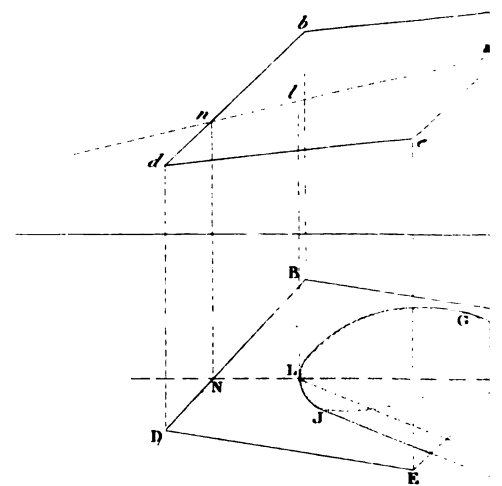


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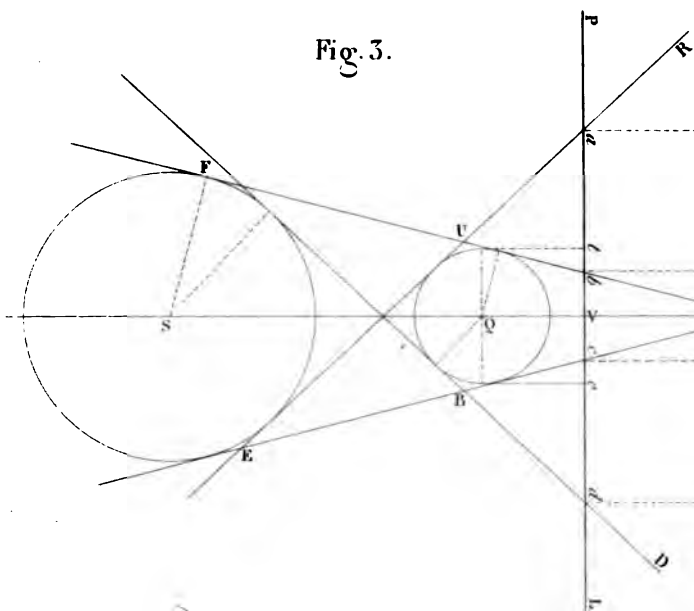


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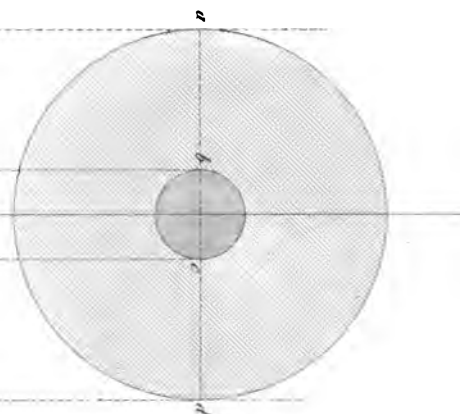


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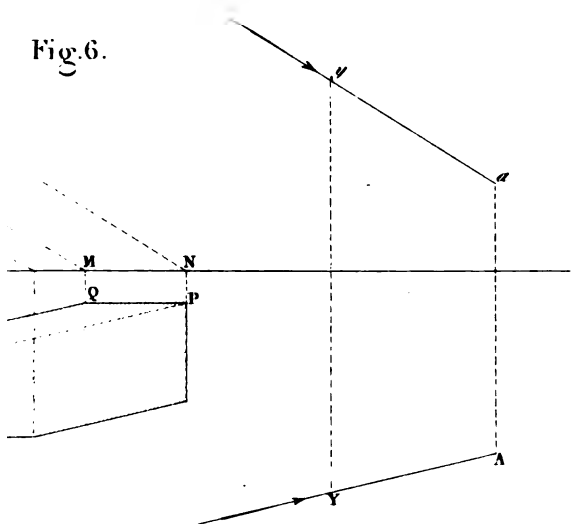


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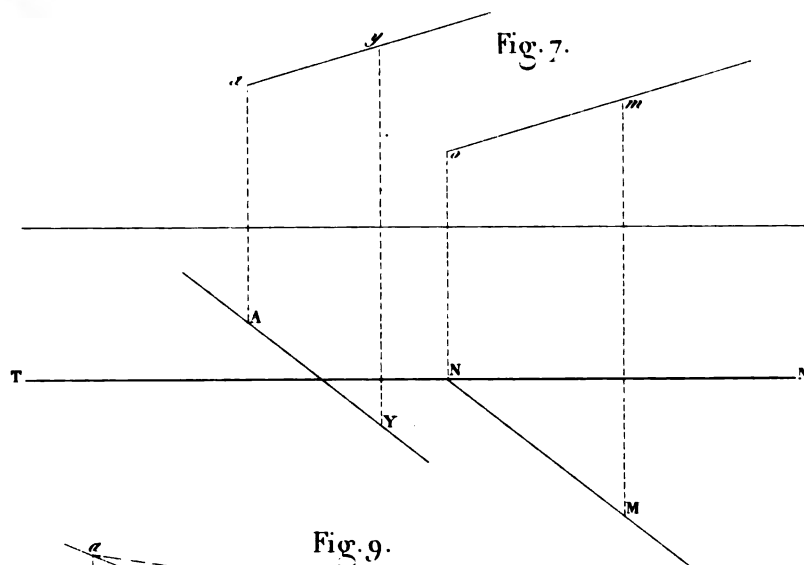


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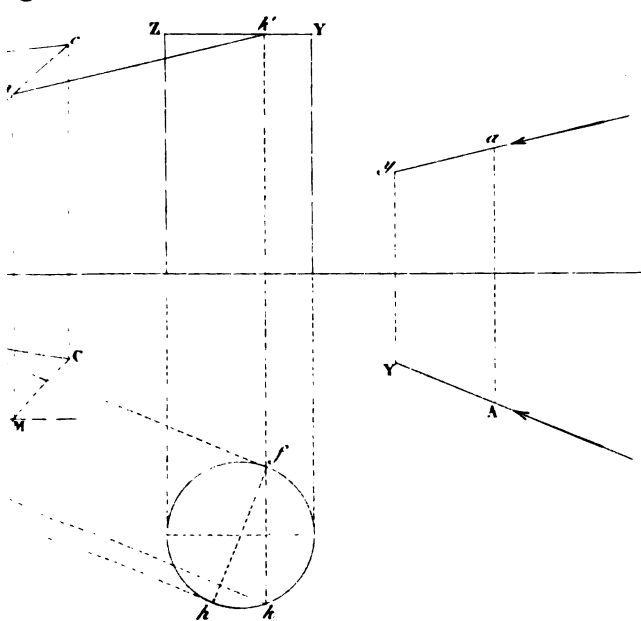


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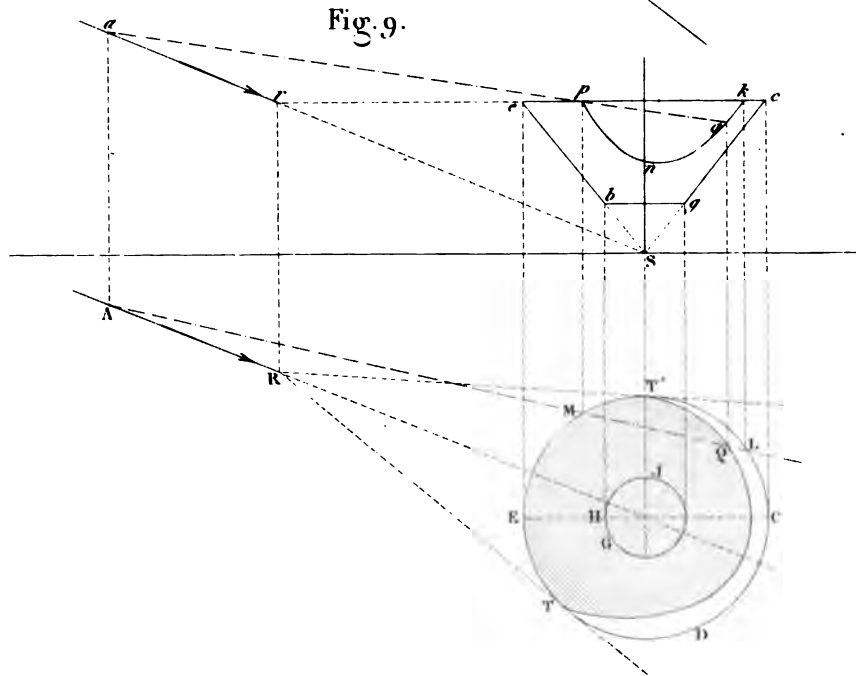








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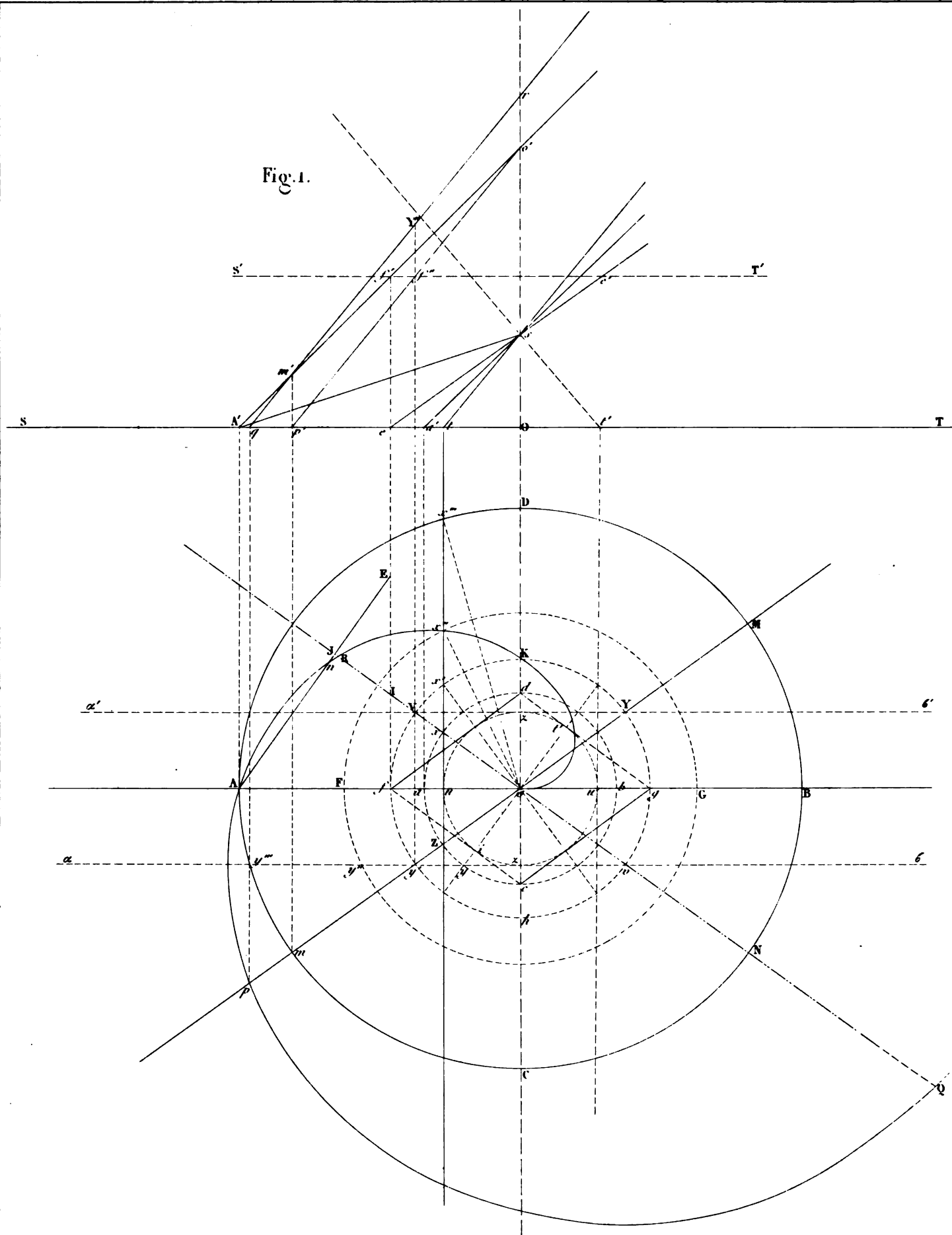


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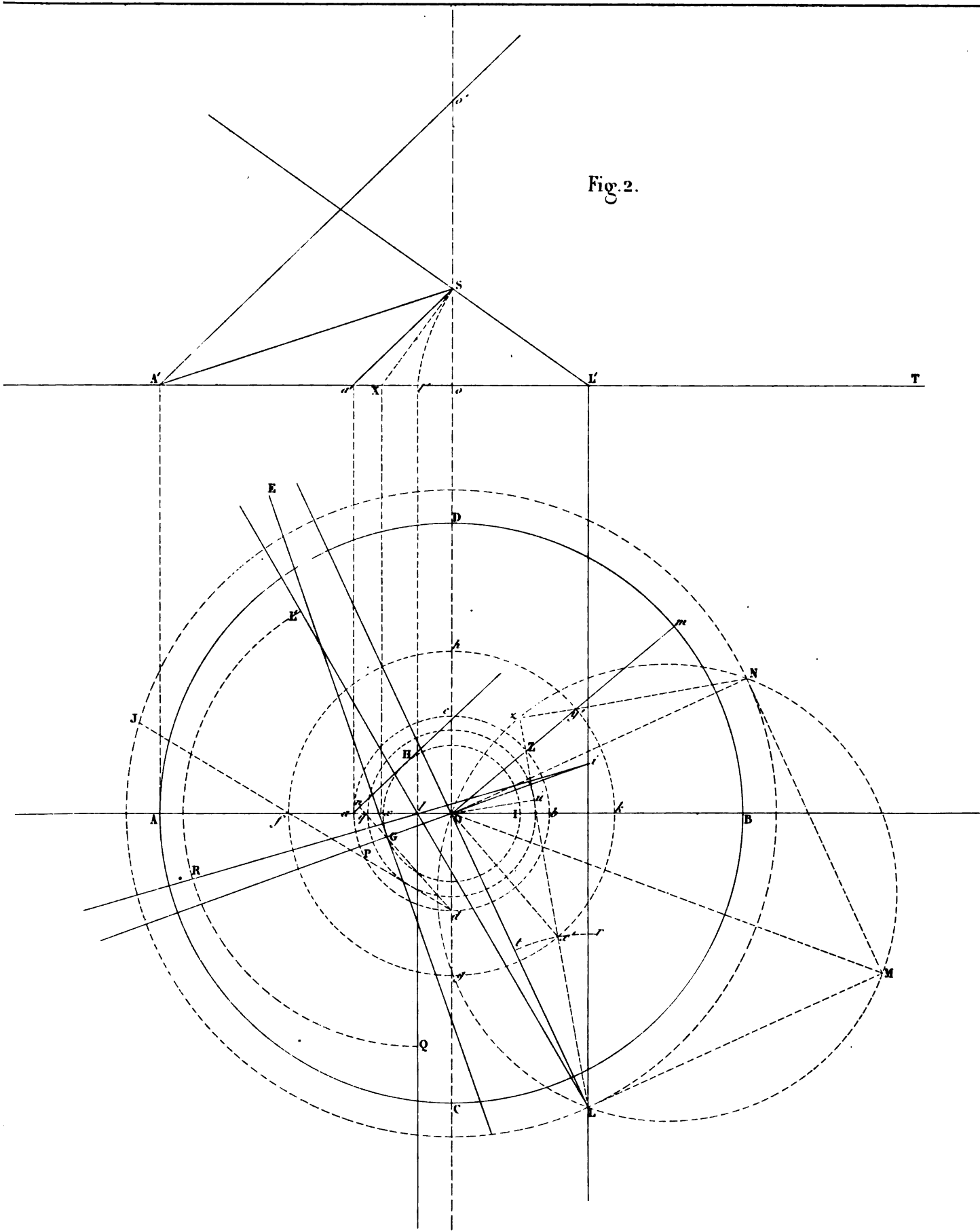






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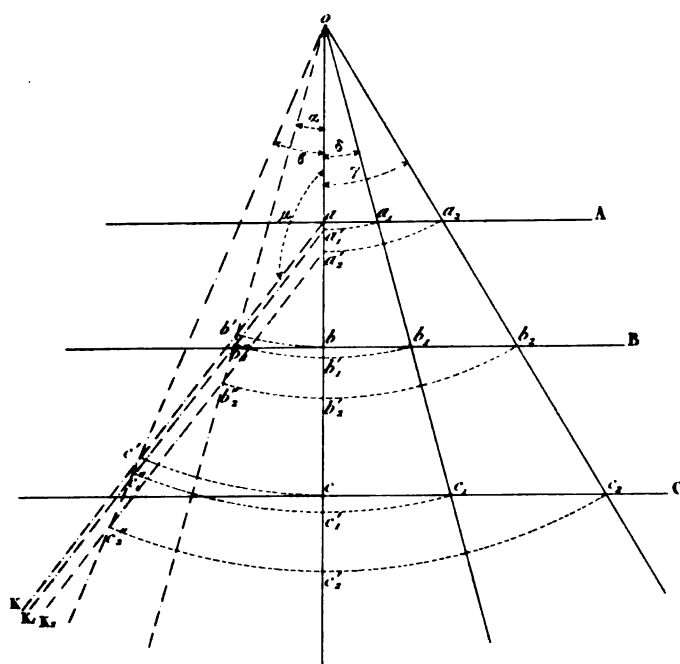


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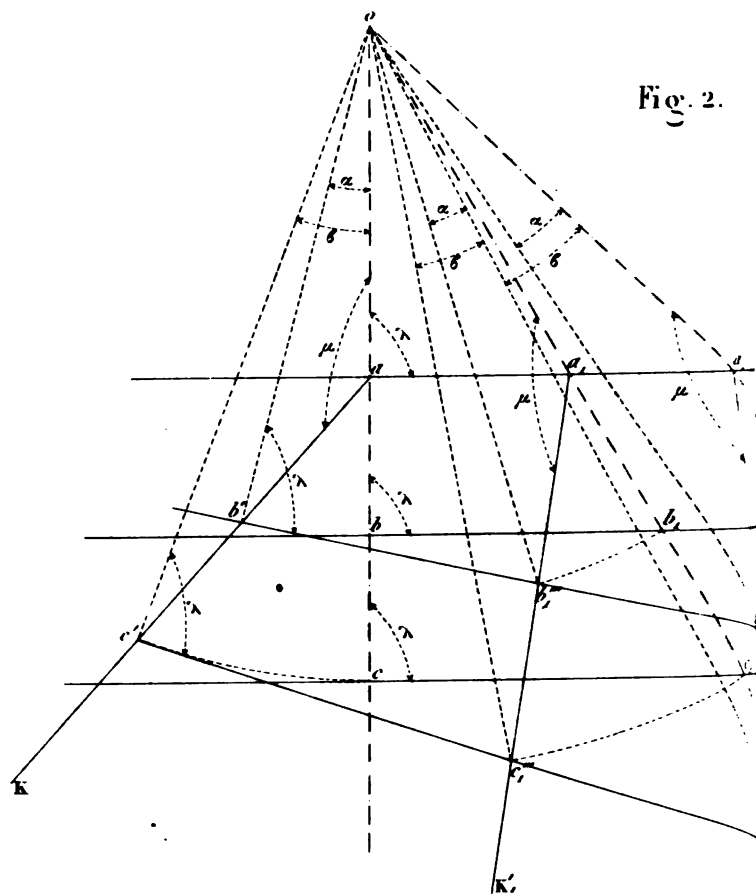


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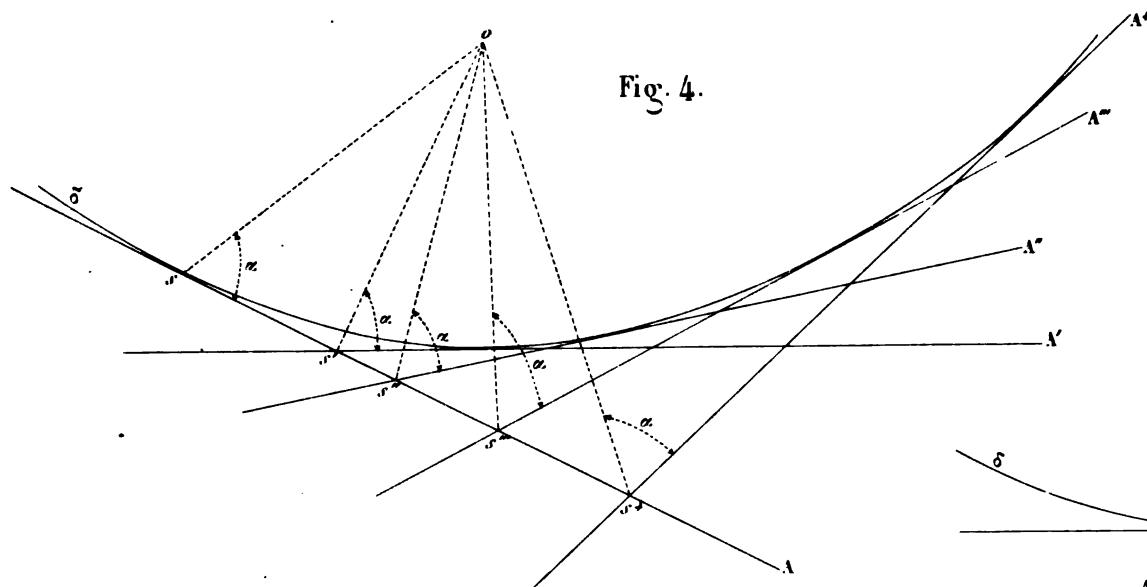


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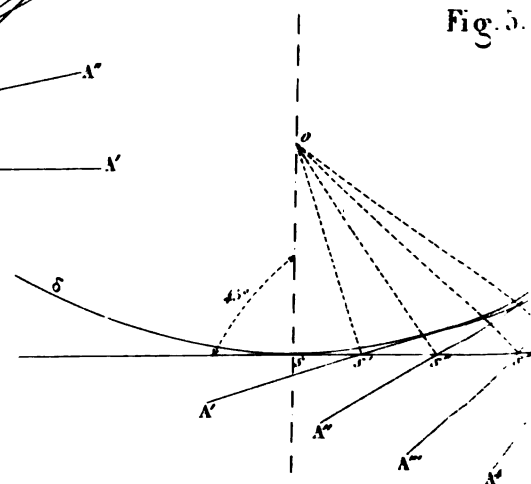


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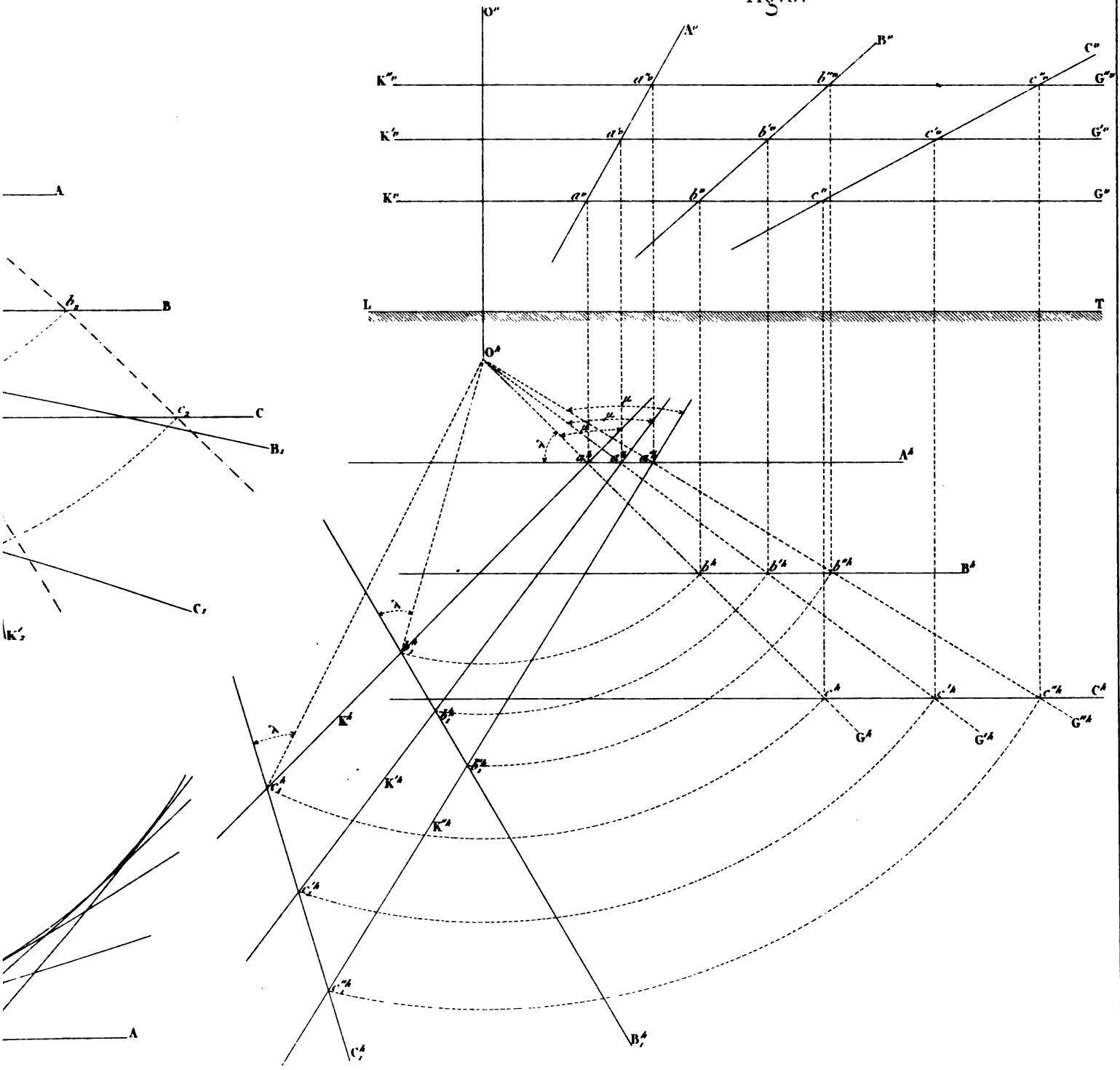








Fig. 5.<sup>6e</sup>

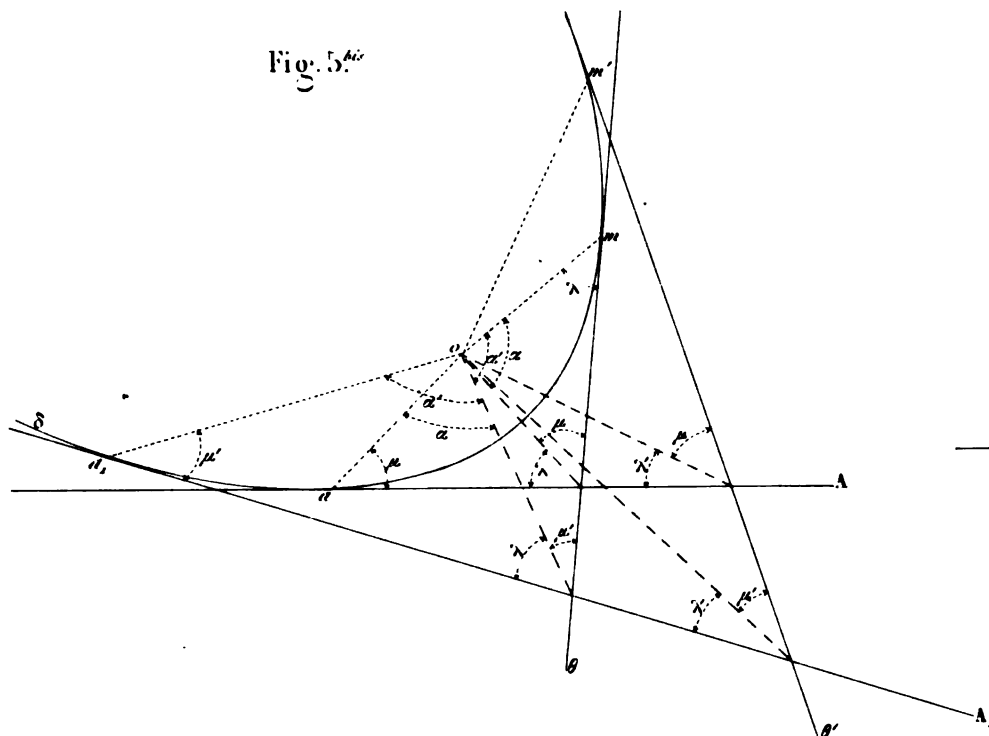


Fig. 5.<sup>7e</sup>

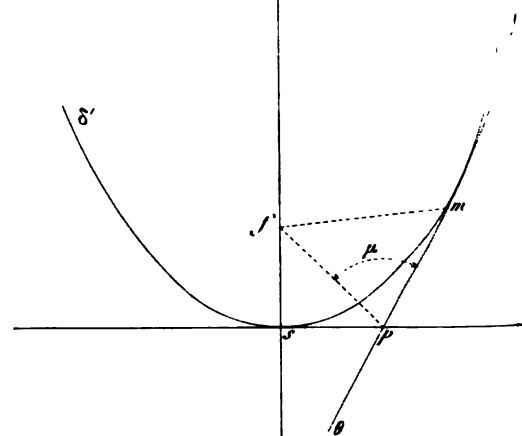


Fig. 5.<sup>8e</sup>

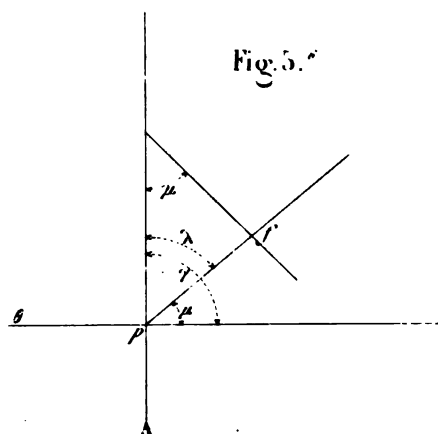


Fig. 5.<sup>9e</sup>

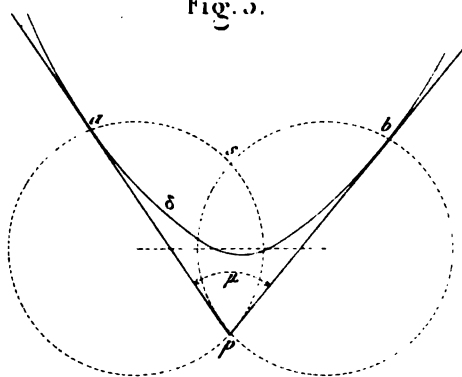


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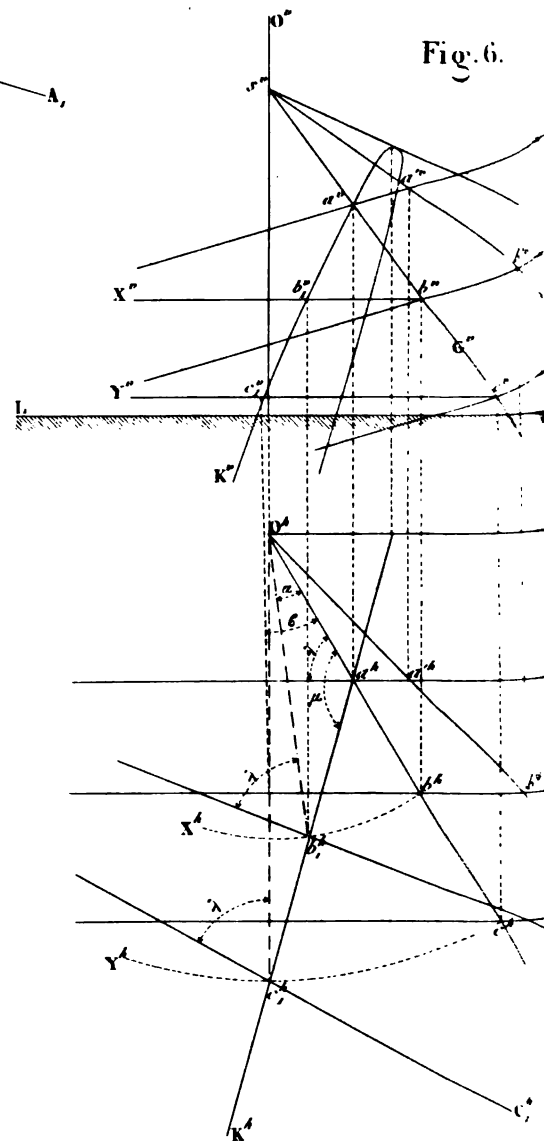


Fig. 5.<sup>4</sup>

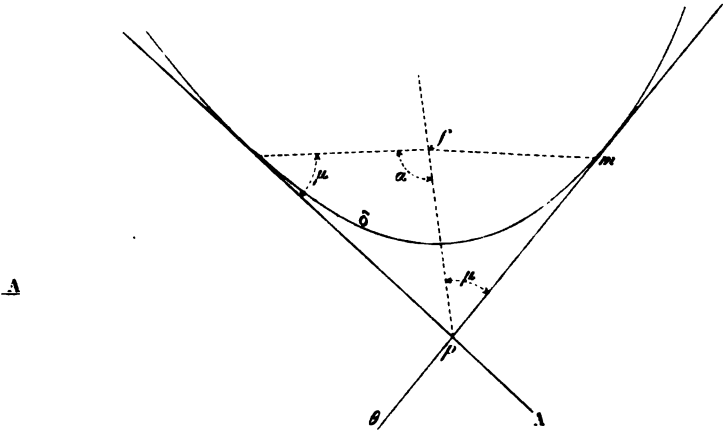


Fig. 5.<sup>5</sup>

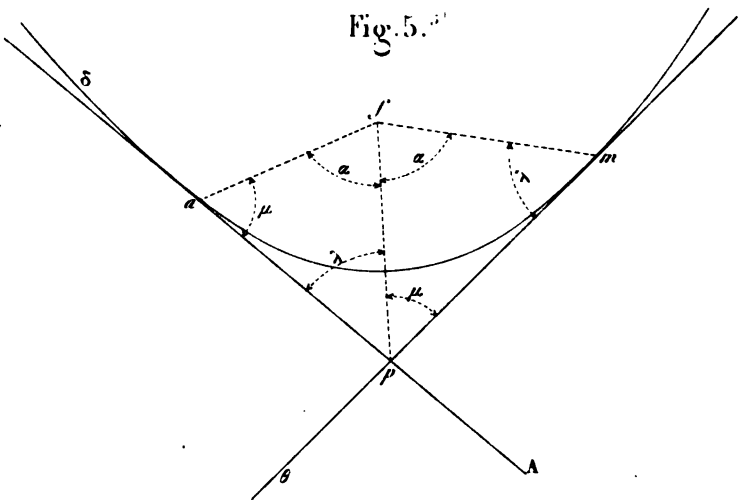


Fig. 7.

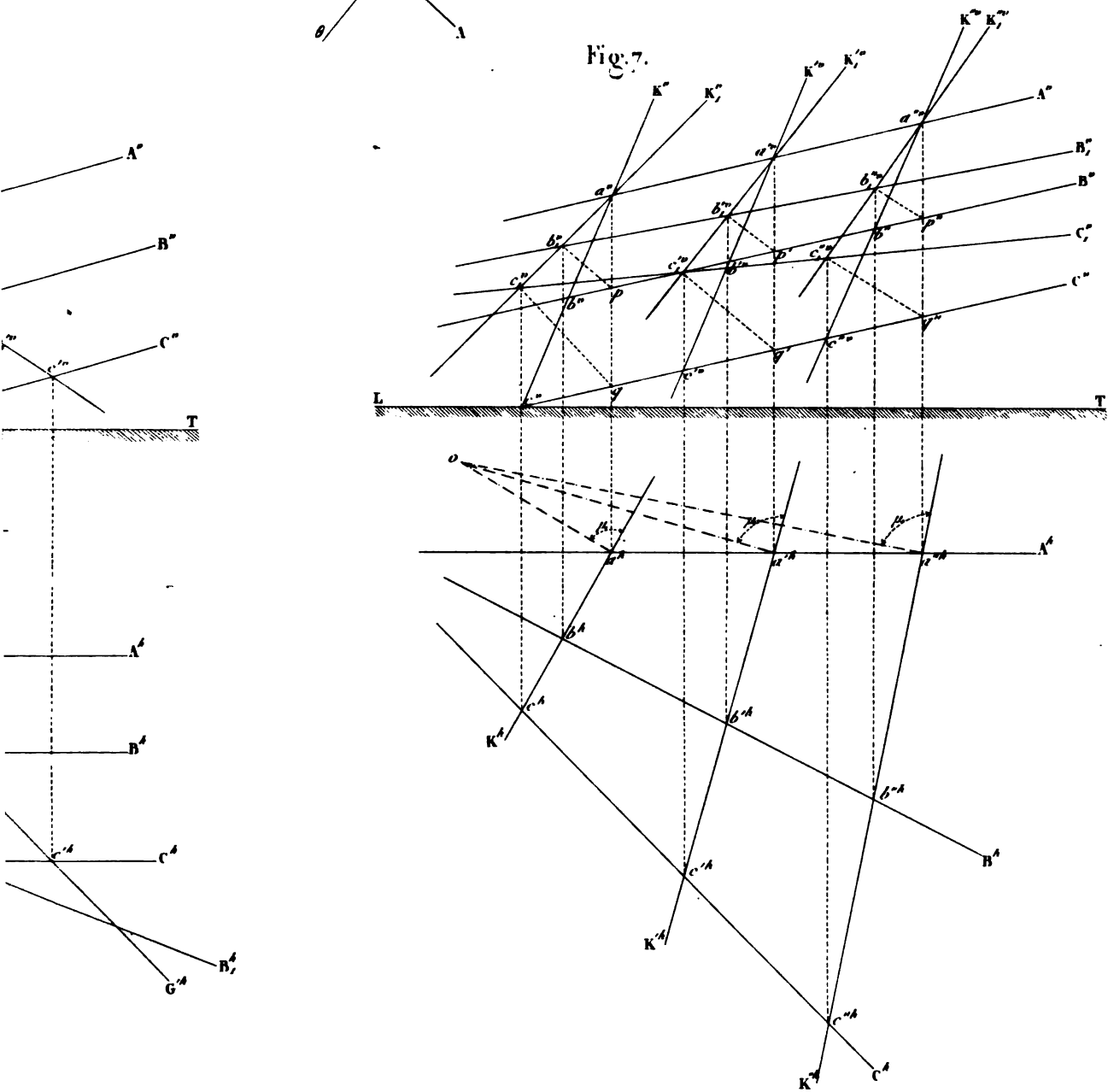






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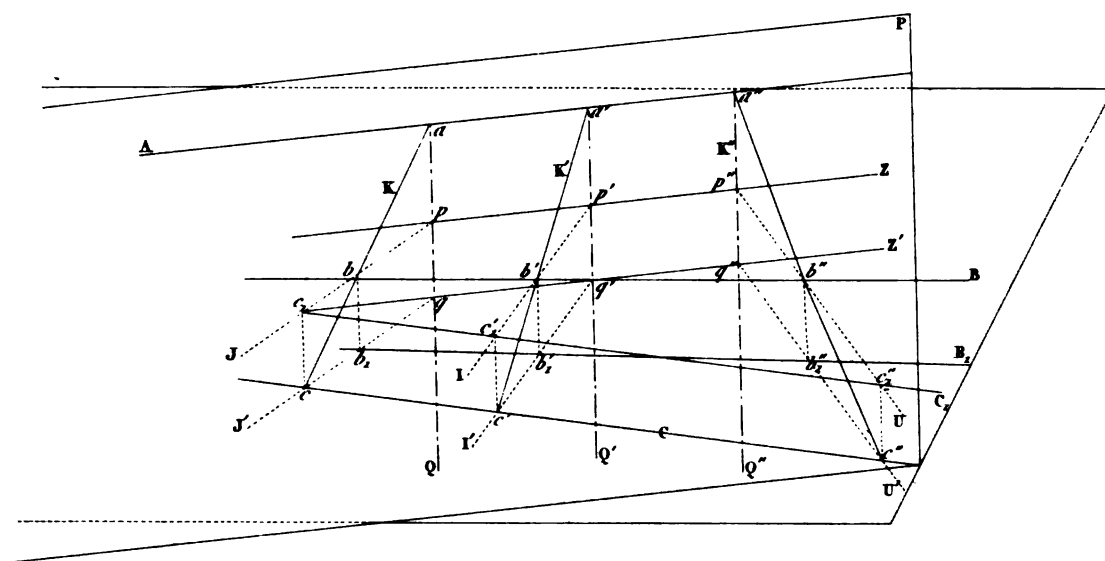


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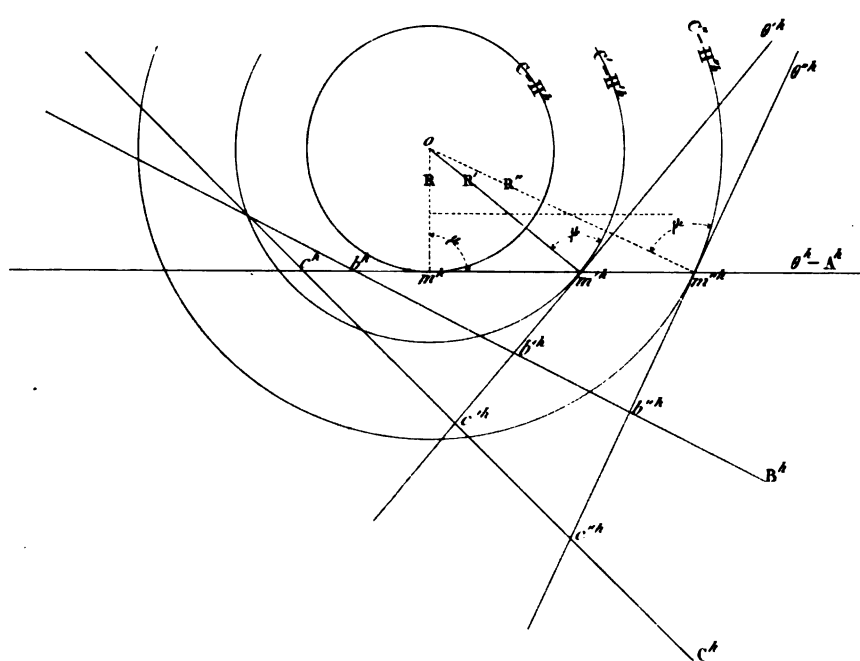


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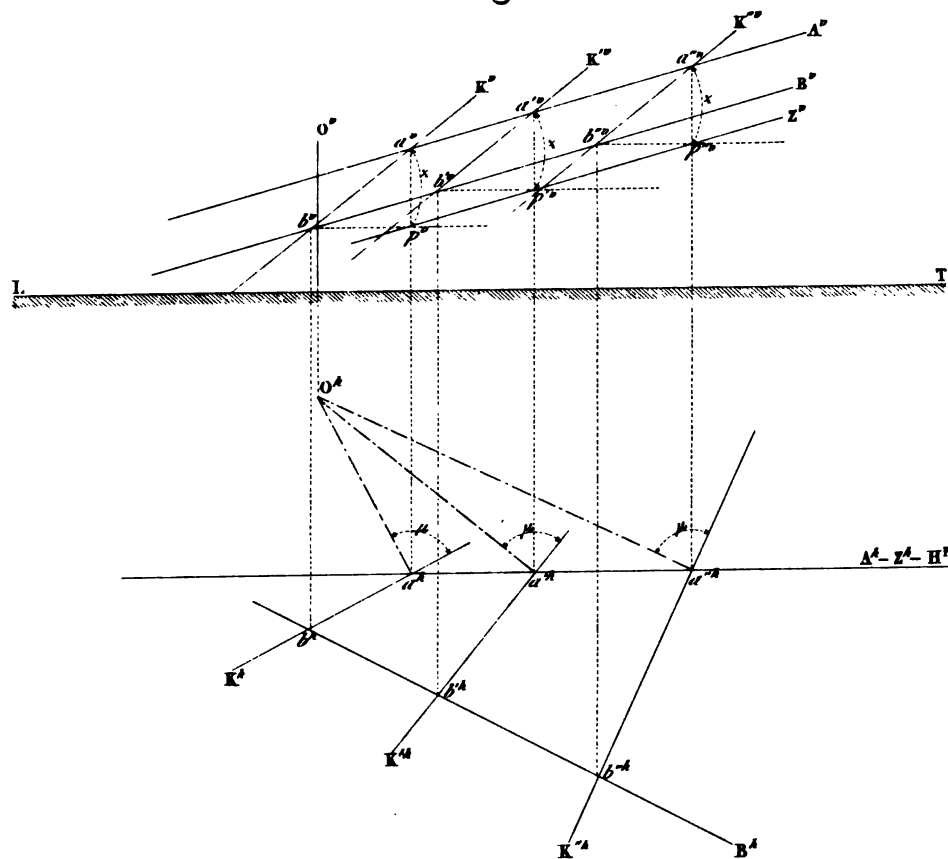


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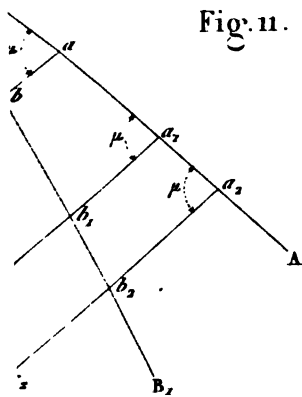
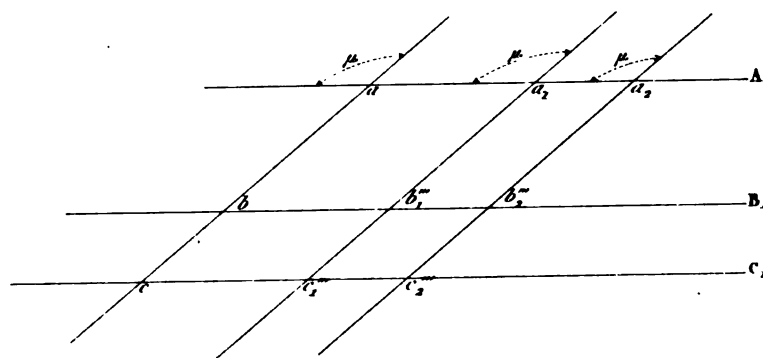


Fig. 12.









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Fig. 6.

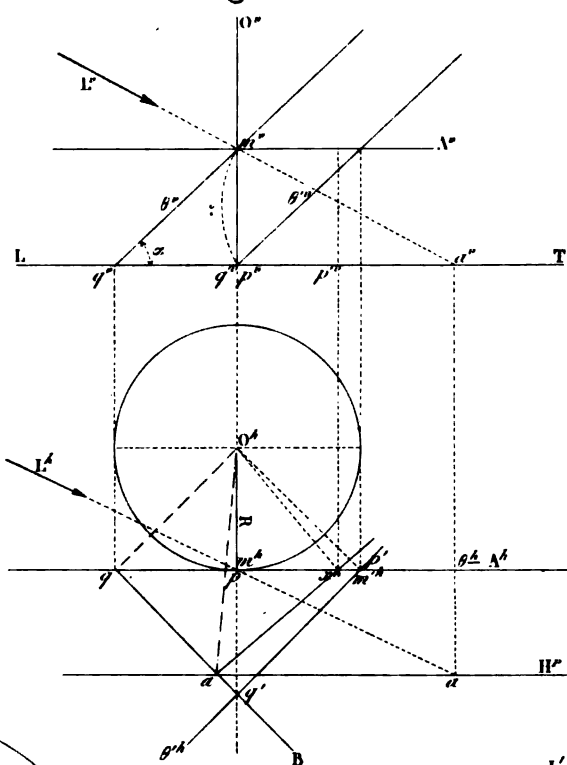


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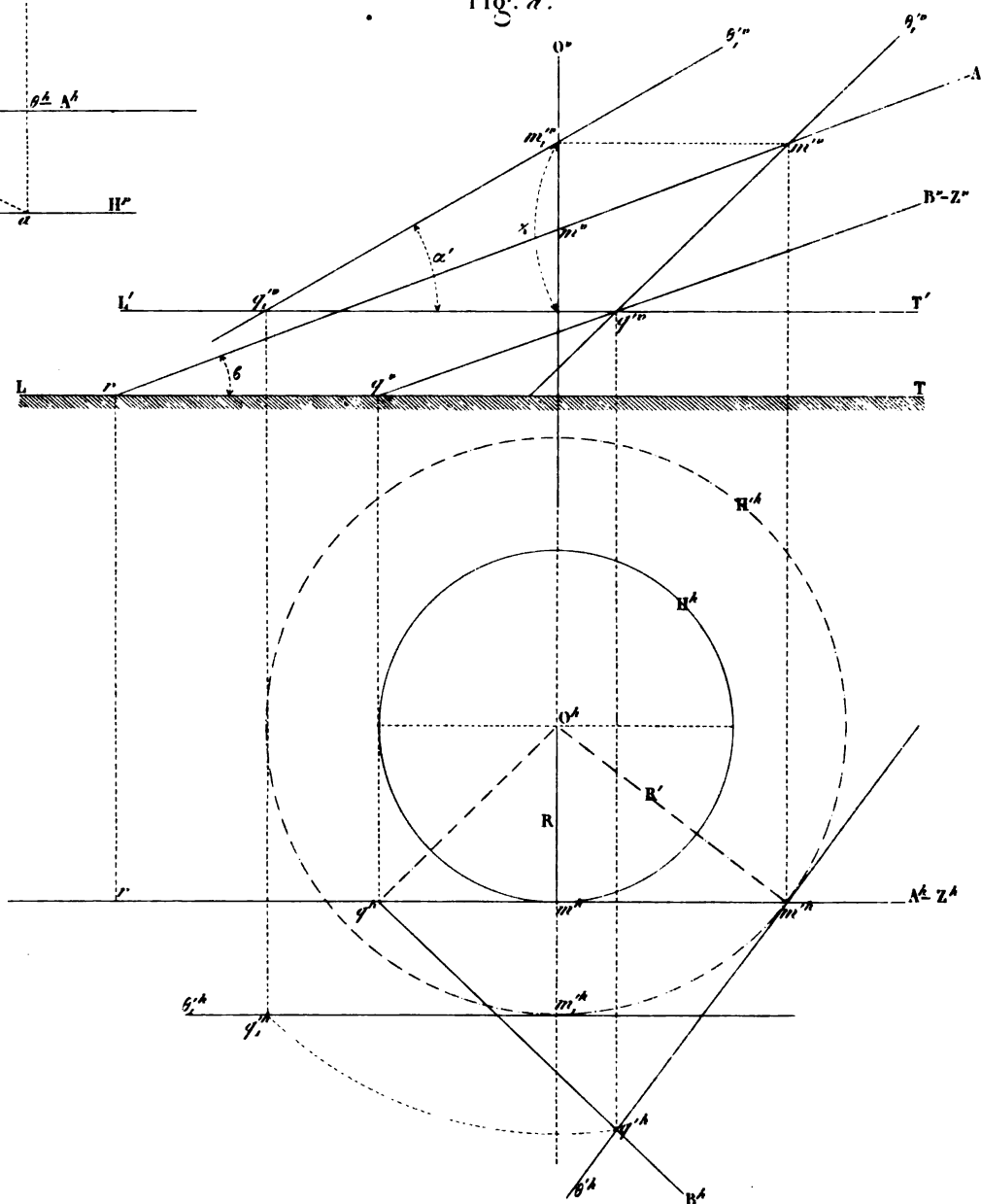






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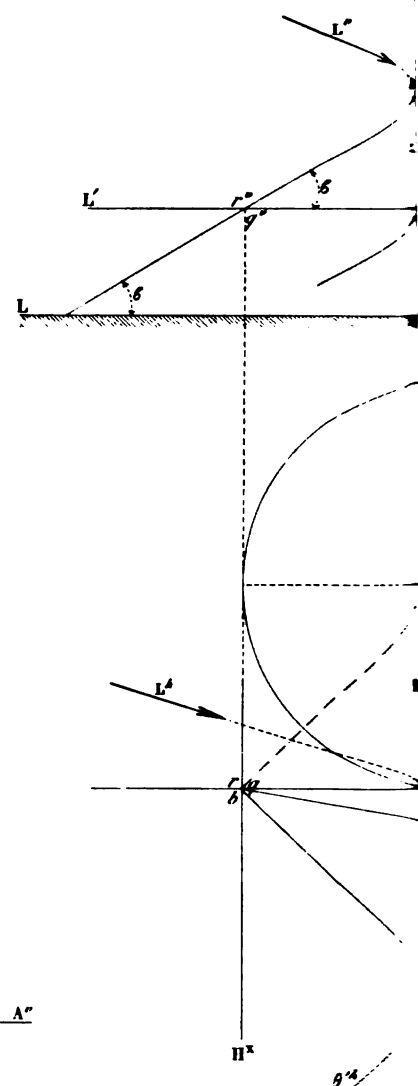
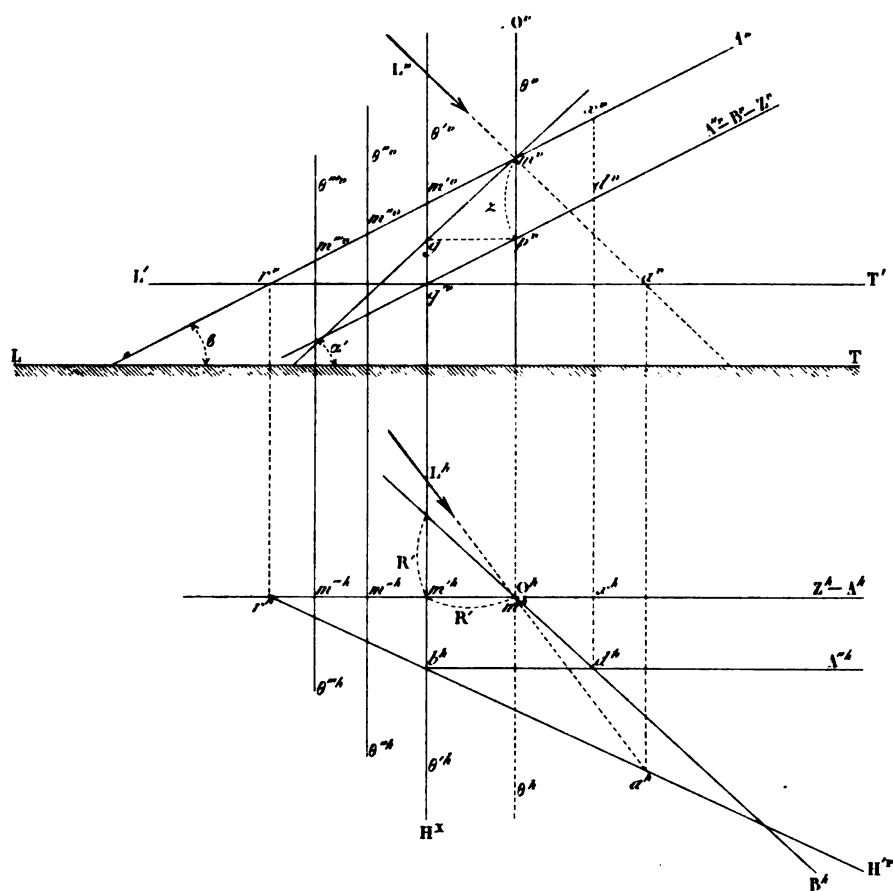
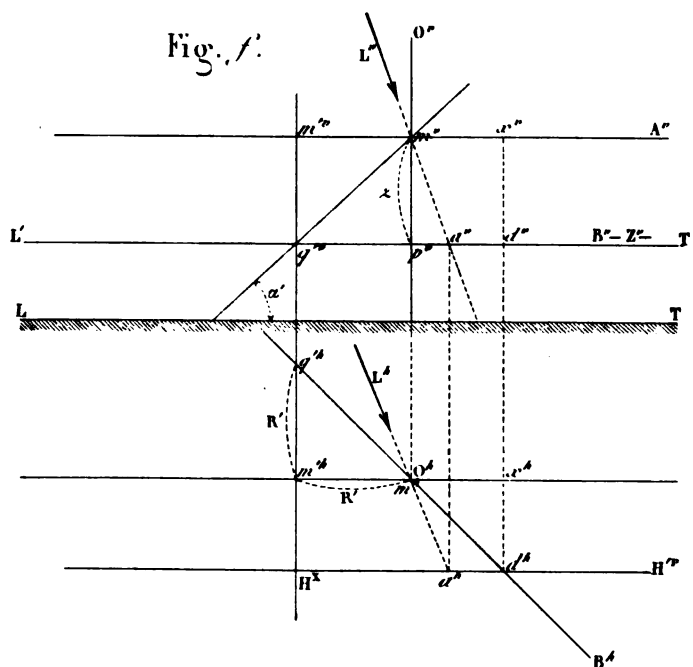


Fig. 7.



The diagram illustrates a complex geometric construction involving multiple intersecting lines and curves. Key elements include:

- A series of parallel lines at the top labeled  $\theta^1 \theta^2 A^1 B^1 A^2 B^2 V^1$ .
- A horizontal line labeled  $T'$  below the parallel lines.
- A horizontal line labeled  $T$  below  $T'$ , with a hatched area underneath it.
- A circular arc on the left side, with points  $H^1$  and  $R^1$  marked on its circumference.
- A point  $P^{12}$  located near the intersection of several lines.
- A point  $d$  located further down and to the right.
- A line segment labeled  $Z^1 A^1 A'^1 A''^1$  passing through  $P^{12}$ .
- A line segment labeled  $B^1$  at the bottom left.
- A line segment labeled  $H^P$  extending from the bottom right towards the center.
- Various other points like  $M^1$ ,  $N^1$ ,  $O^1$ ,  $S^1$ ,  $V^1$ ,  $X^1$ ,  $Y^1$ ,  $Z^1$ ,  $A^1$ ,  $B^1$ ,  $C^1$ ,  $D^1$ ,  $E^1$ ,  $F^1$ ,  $G^1$ ,  $I^1$ ,  $J^1$ ,  $K^1$ ,  $L^1$ ,  $Q^1$ ,  $R^1$ ,  $S^1$ ,  $T^1$ ,  $U^1$ ,  $V^1$ ,  $W^1$ ,  $X^1$ ,  $Y^1$ ,  $Z^1$  are scattered throughout the diagram, often serving as vertices or centers of arcs.
- Dashed and dotted lines connect many of these points, indicating auxiliary constructions or projections.









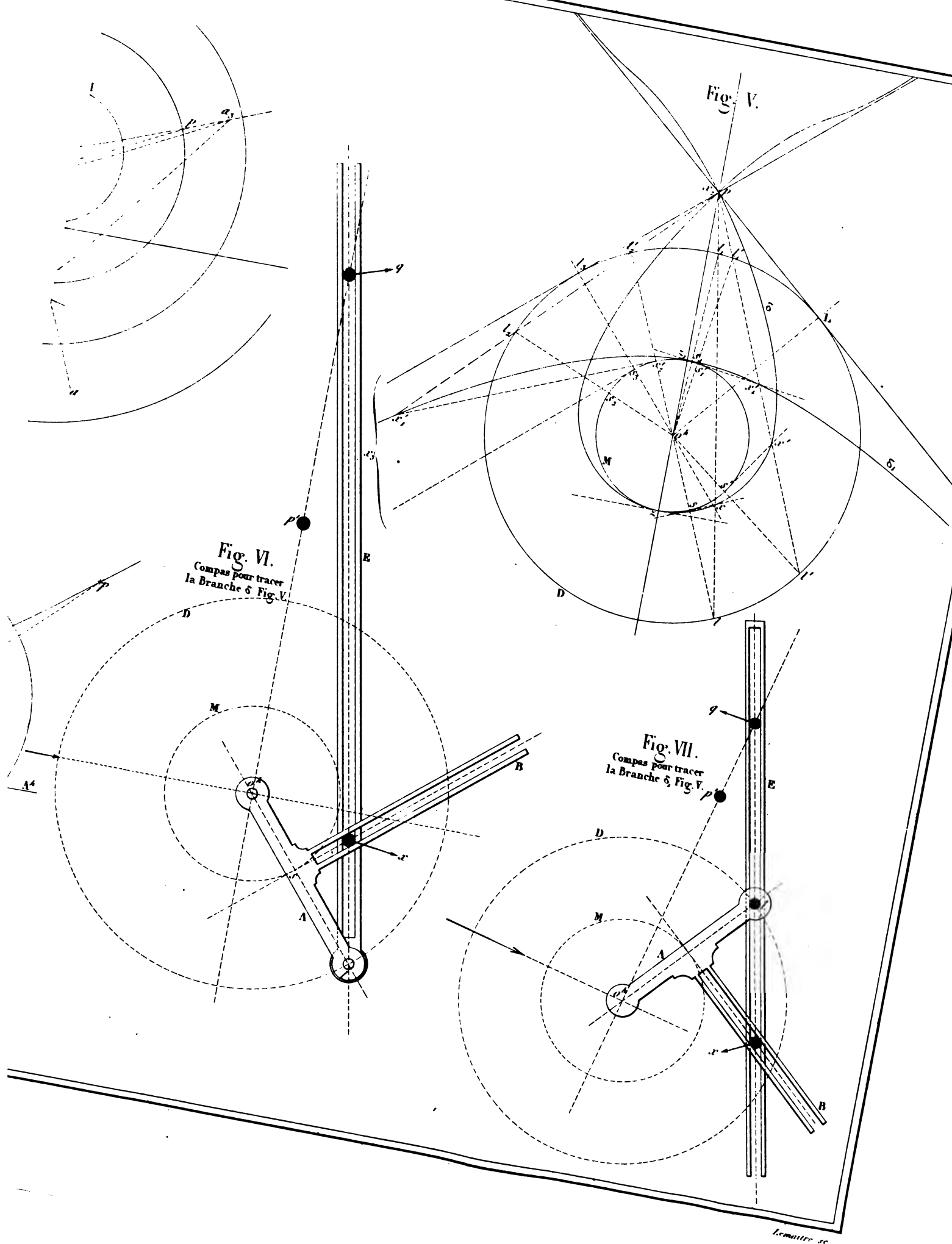






Fig. VIII.

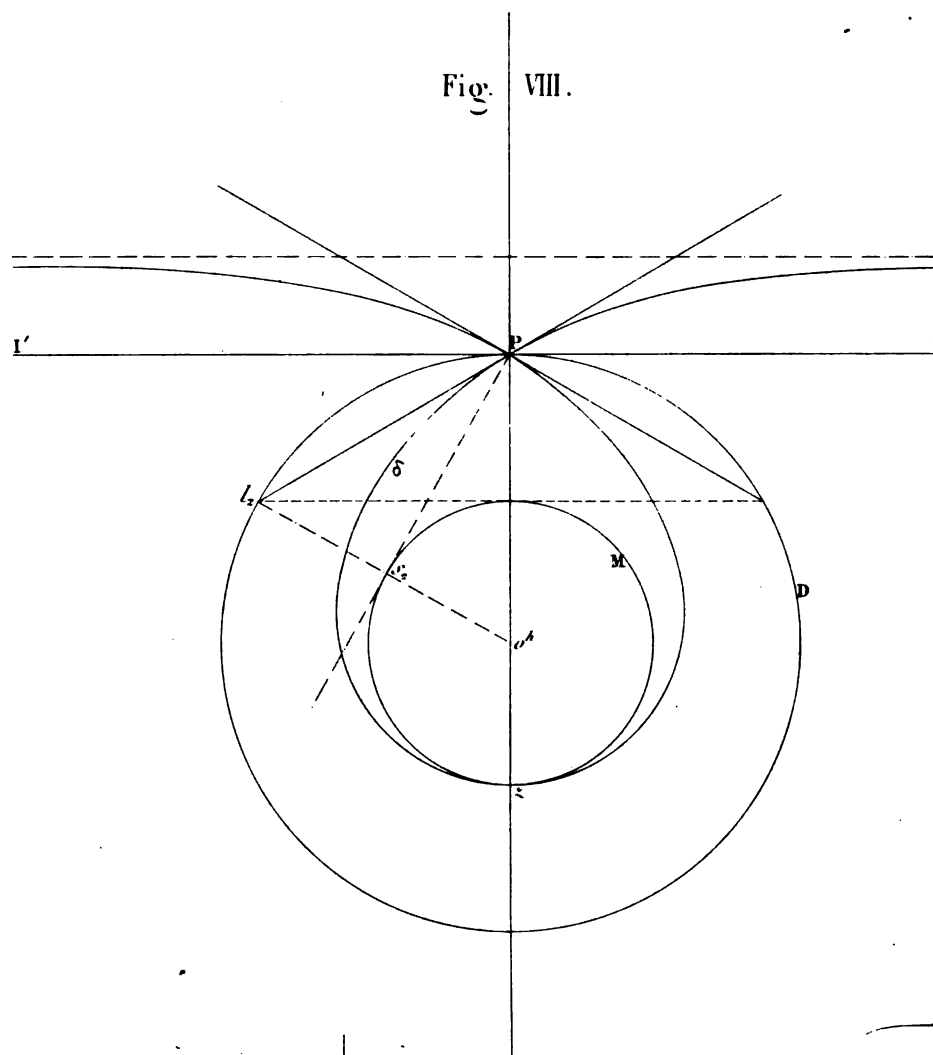


Fig. IX.

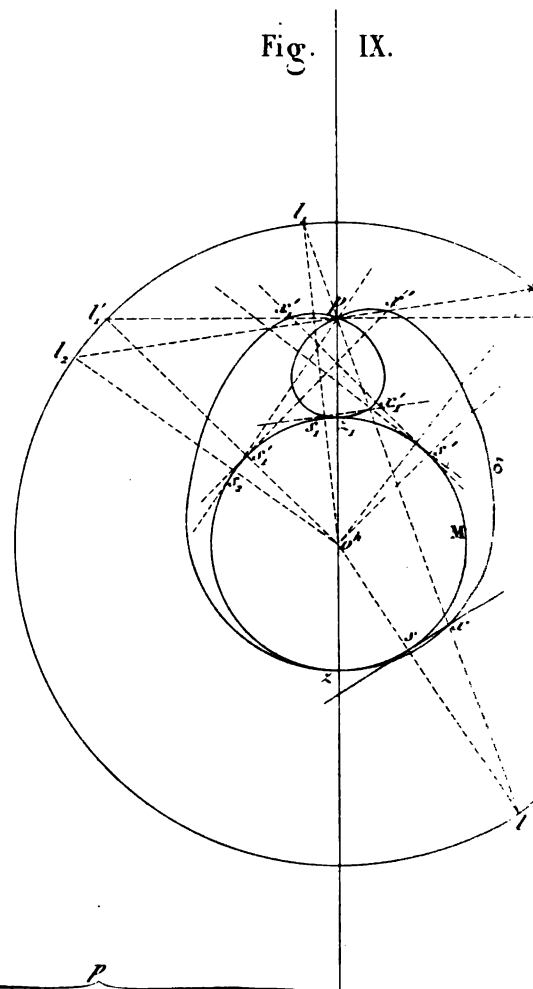


Fig. XII.

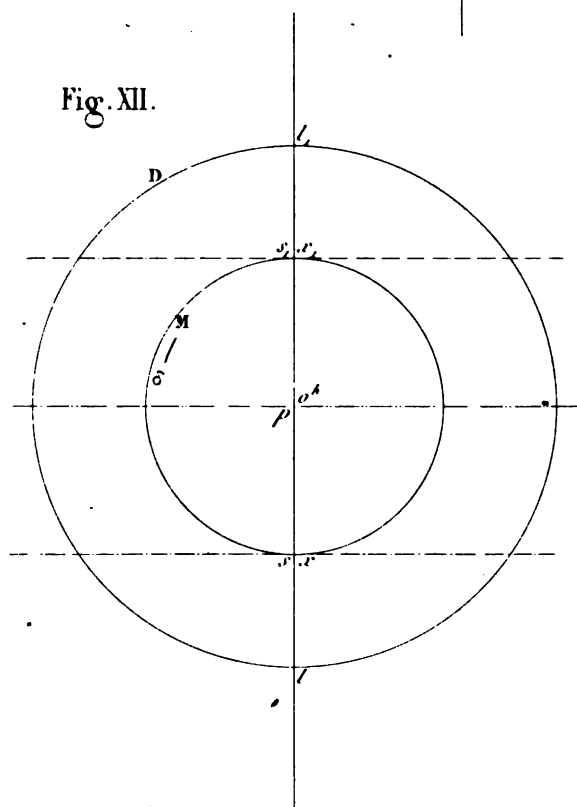


Fig. XIII.

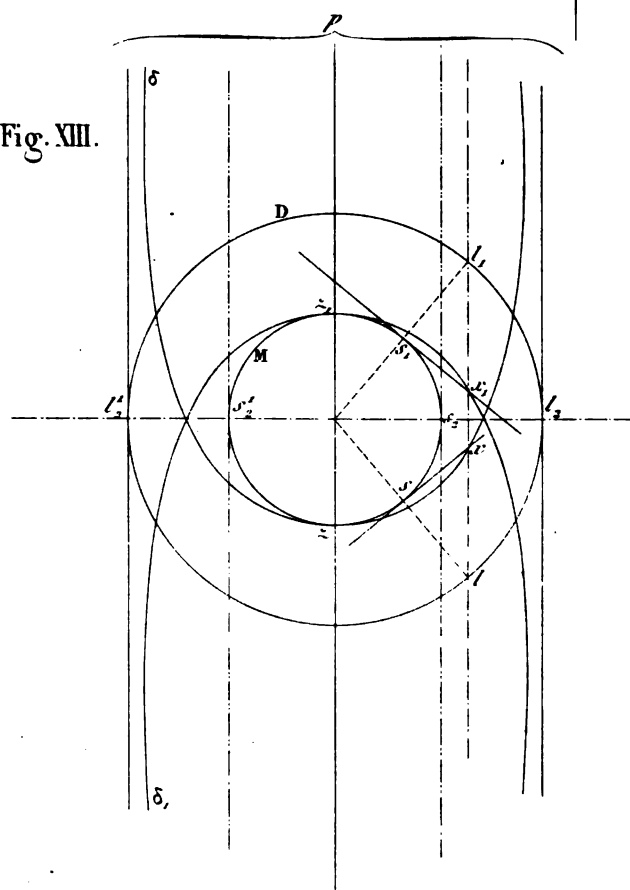


Fig. X.

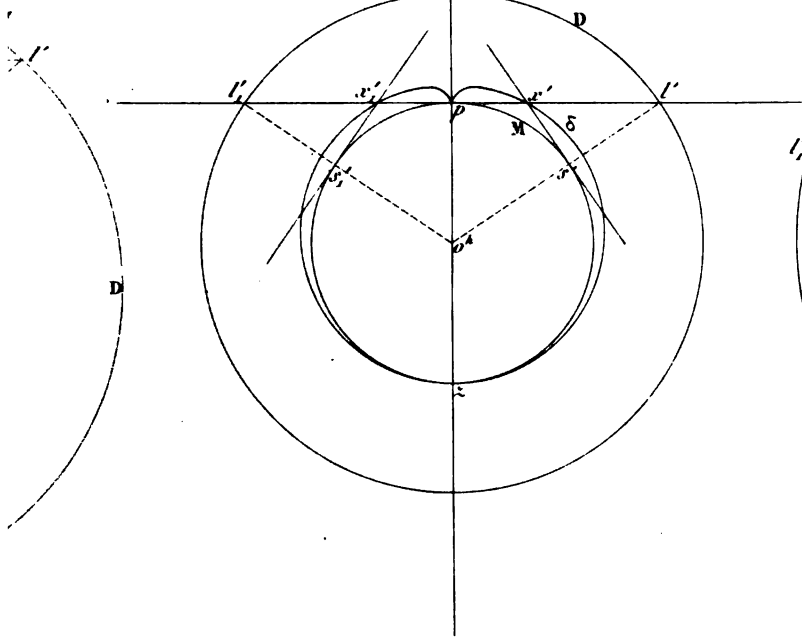


Fig. XI.

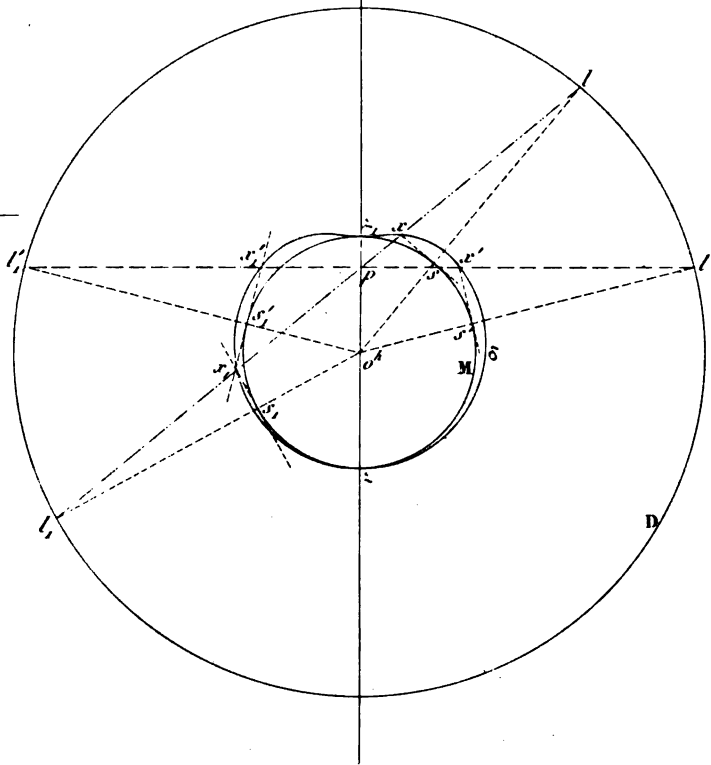


Fig. XIV.

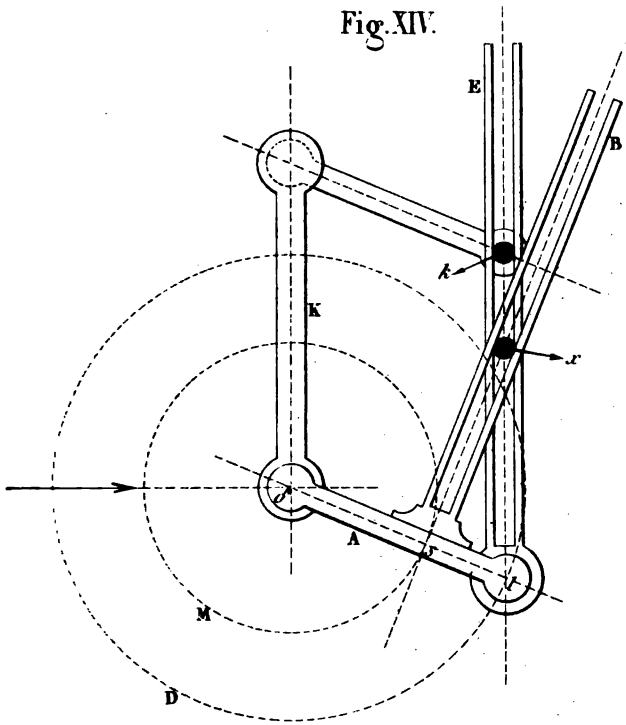
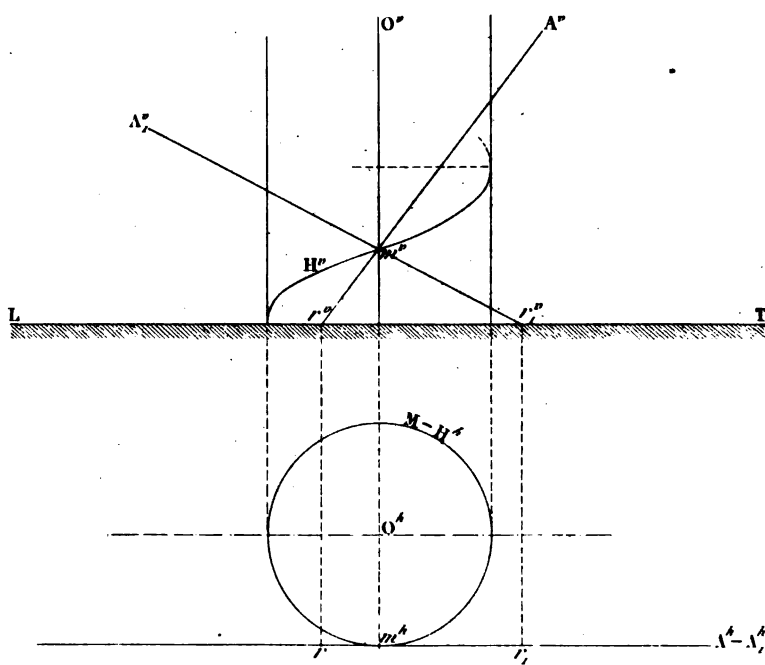


Fig. XV.



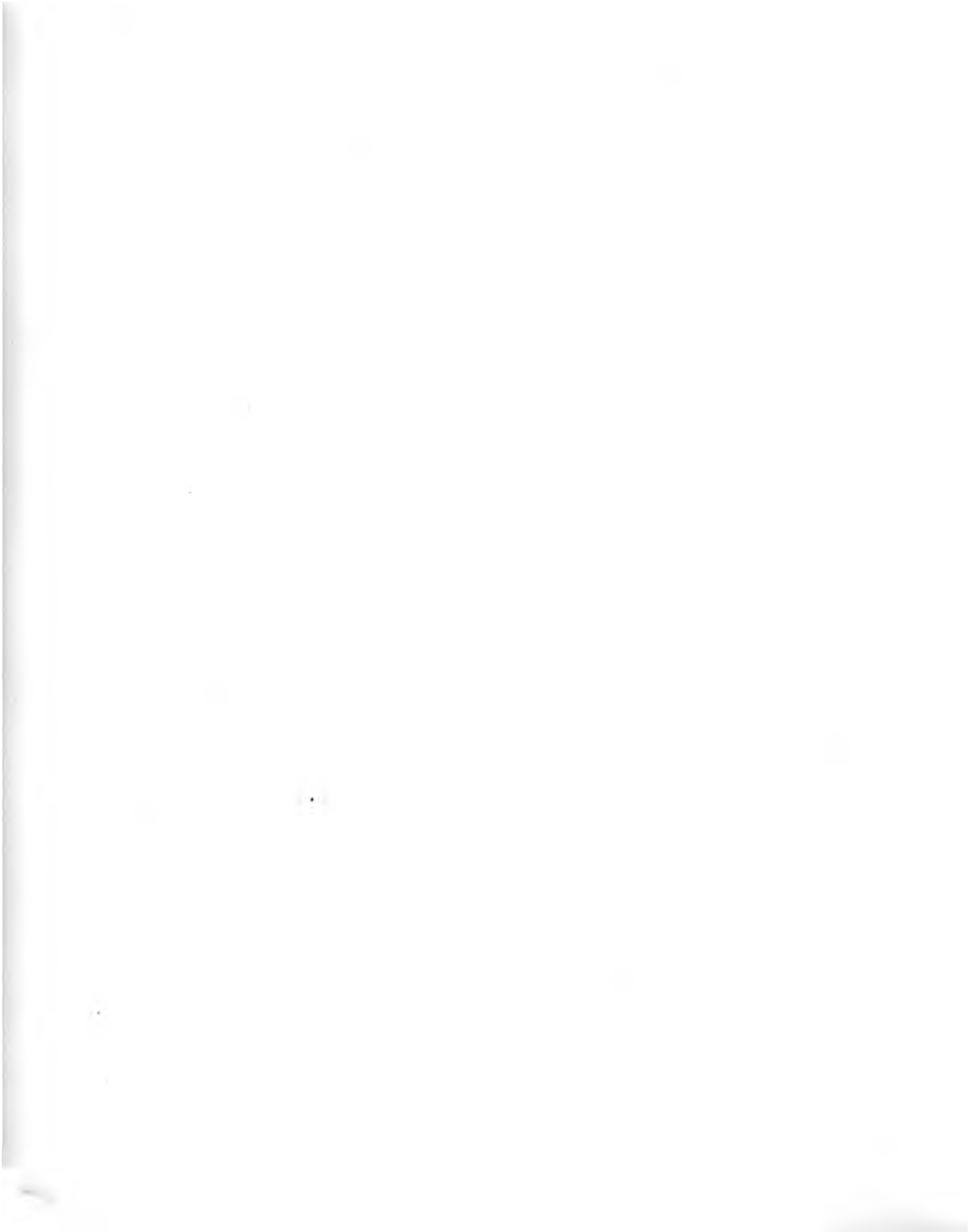








Fig. XVIII.

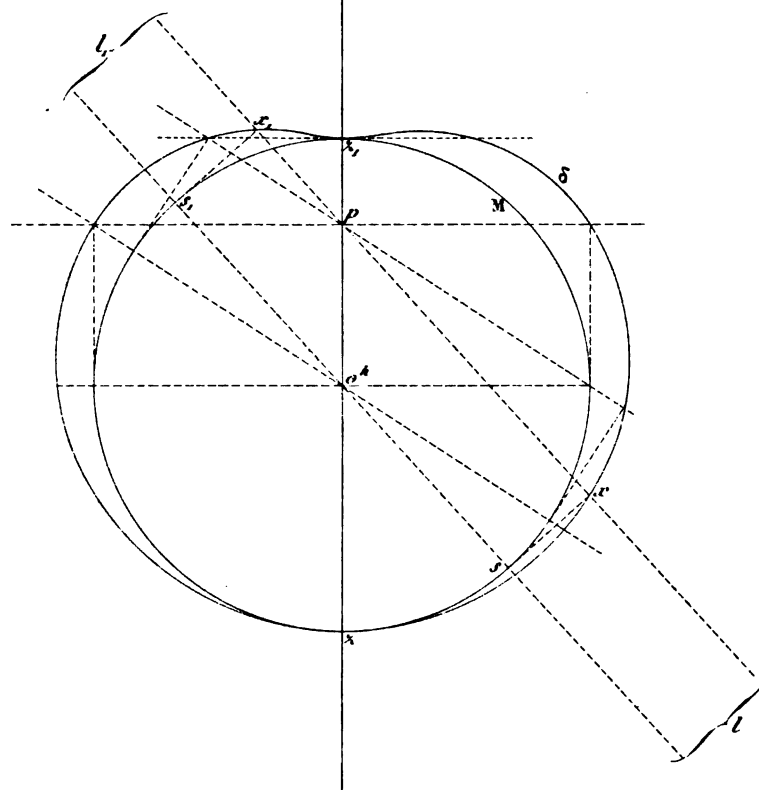


Fig. XXI.

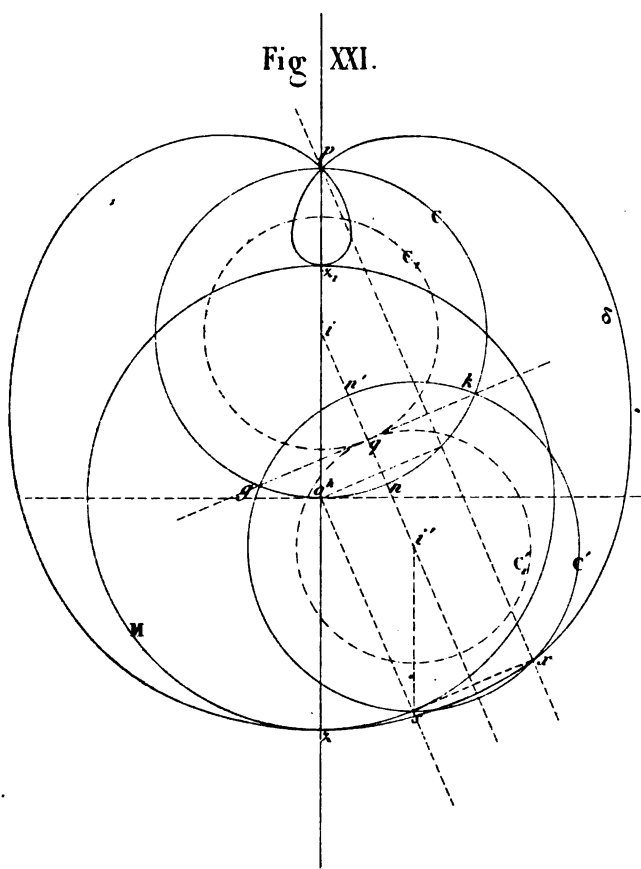


Fig. XXII.

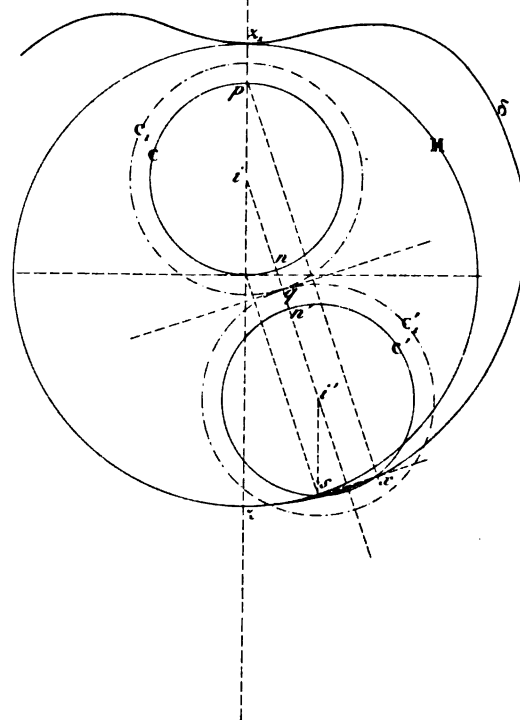






Fig. XXIII.

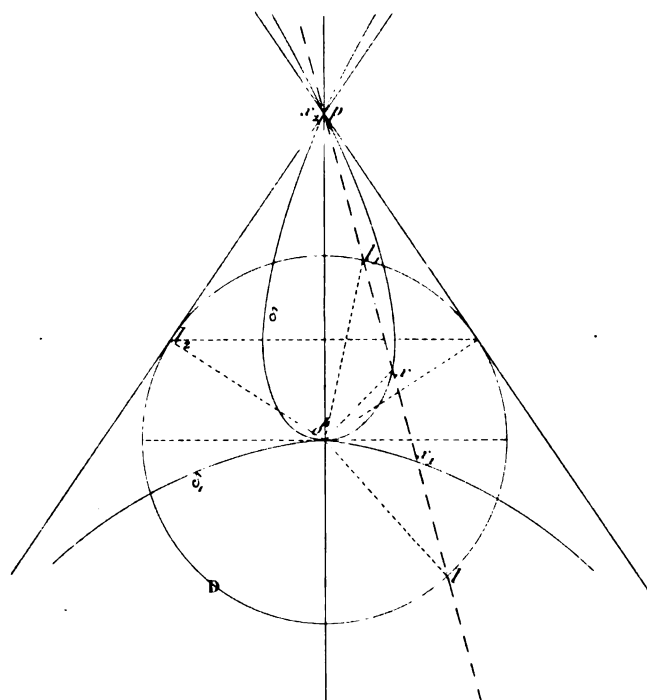


Fig. XXIV.

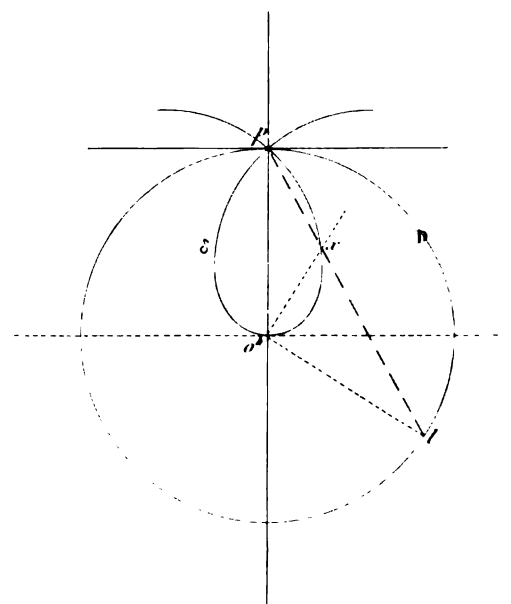
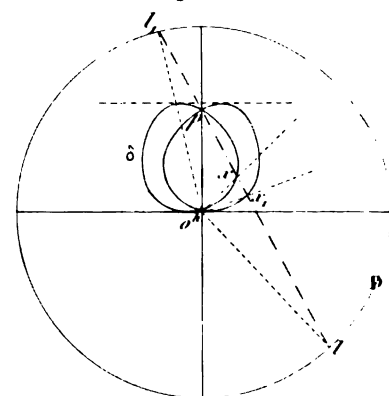


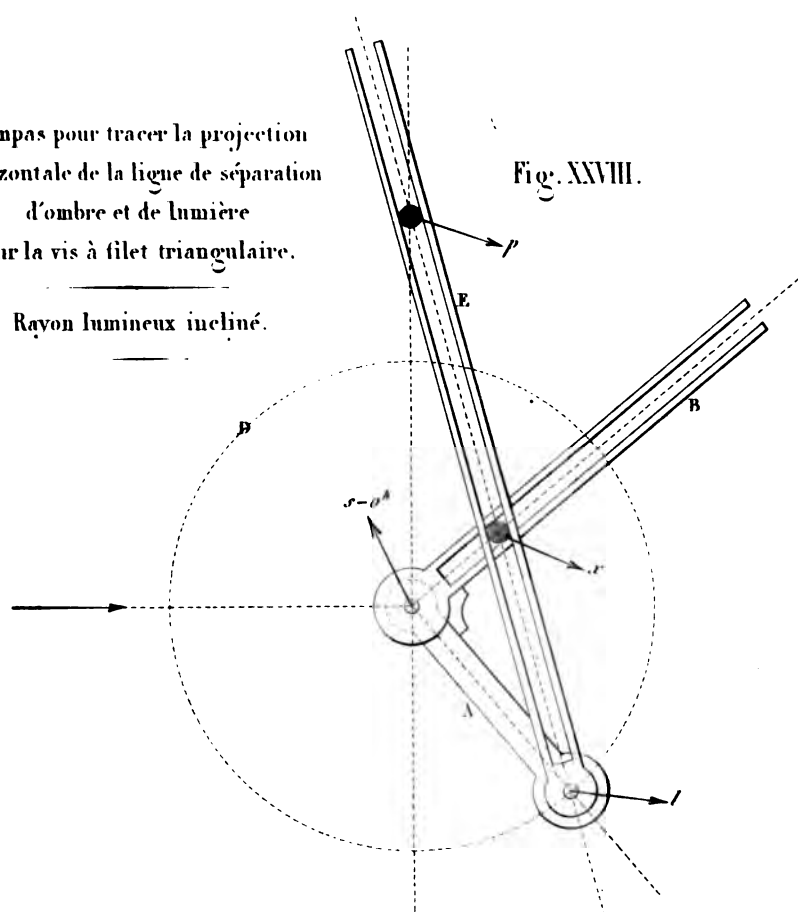
Fig. XXV.



Compas pour tracer la projection  
horizontale de la ligne de séparation  
d'ombre et de lumière  
sur la vis à filet triangulaire.

Rayon lumineux incliné.

Fig. XXVIII.



Compas pour tracer la projection  
horizontale de la ligne de séparation  
d'ombre et de lumière  
sur la vis à filet triangulaire.

Rayon lumineux horizontal.

Fig. XXVI.

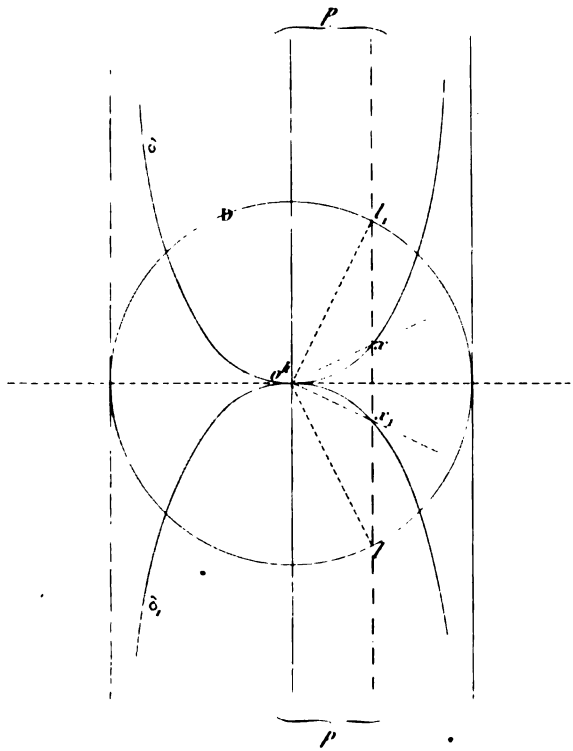


Fig. XVTL.

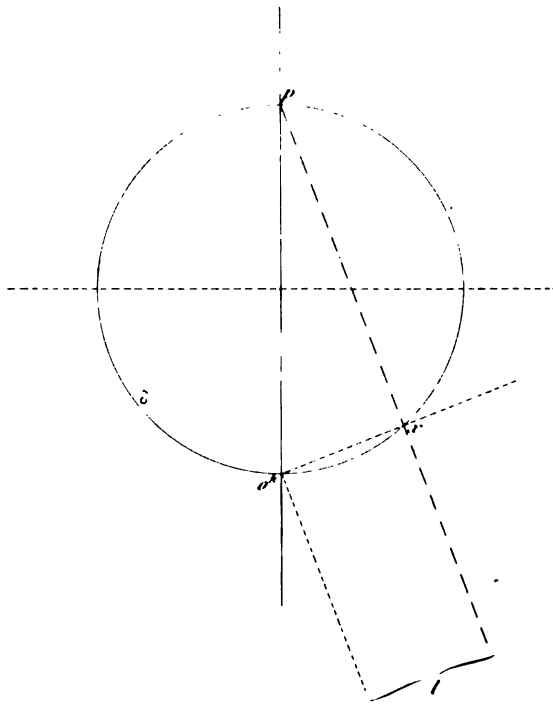


Fig. XXIX.

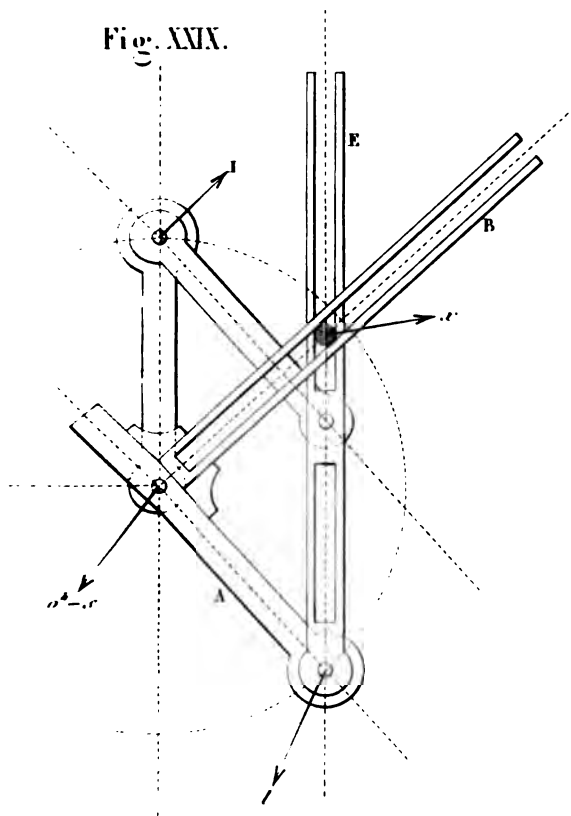
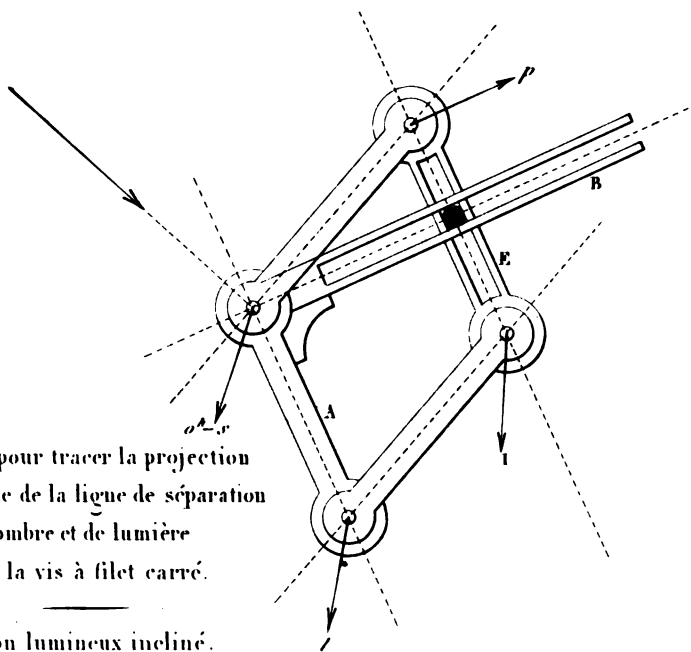


Fig. XXX.



Compas pour tracer la projection  
horizontale de la ligne de séparation  
d'ombre et de lumière  
sur la vis à filet carré.

**Rayon lumineux incliné.**









**Mémoire N°5.**

Fig. M.

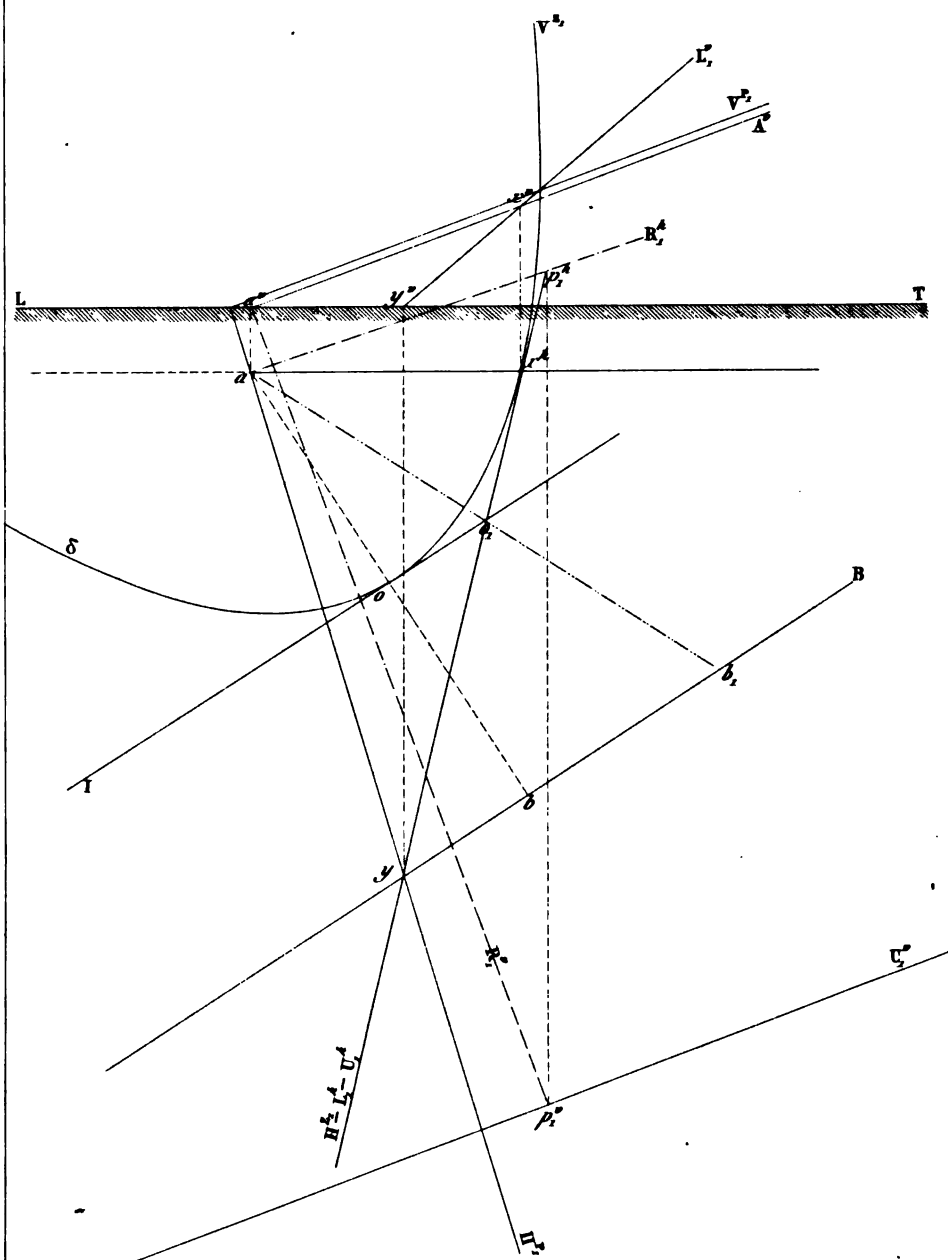
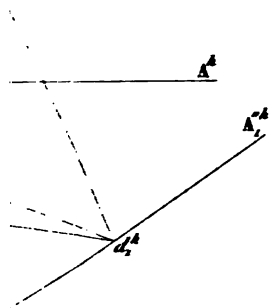
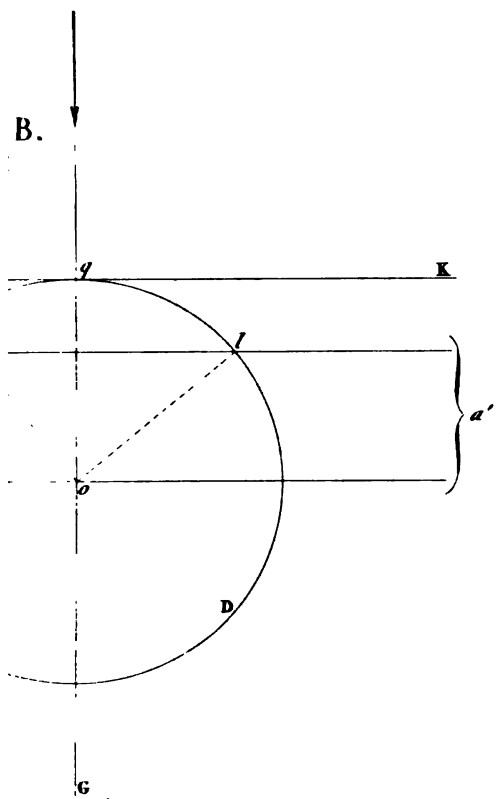






Fig.1.

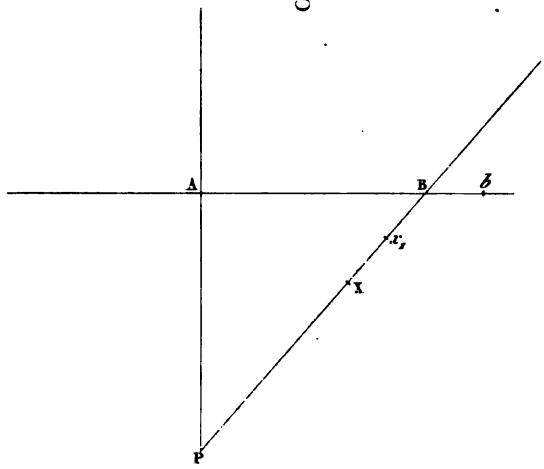


Fig. 2.

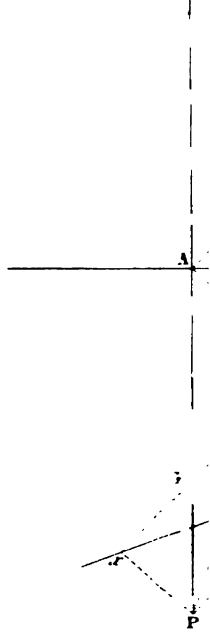
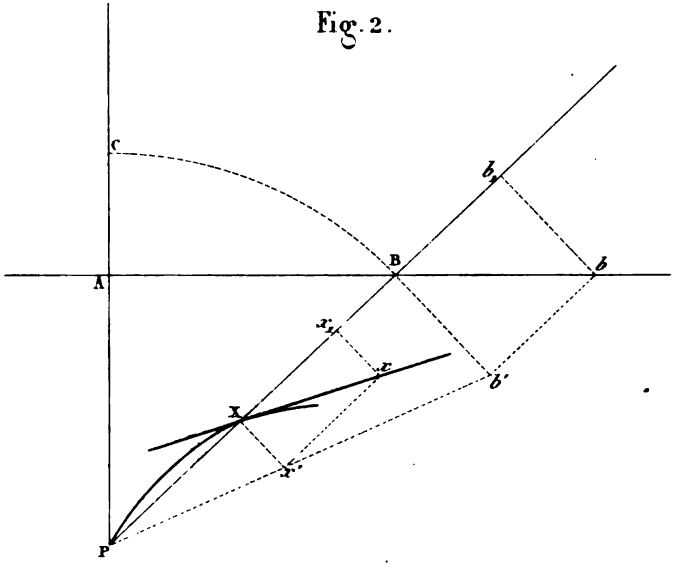


Fig. 6.

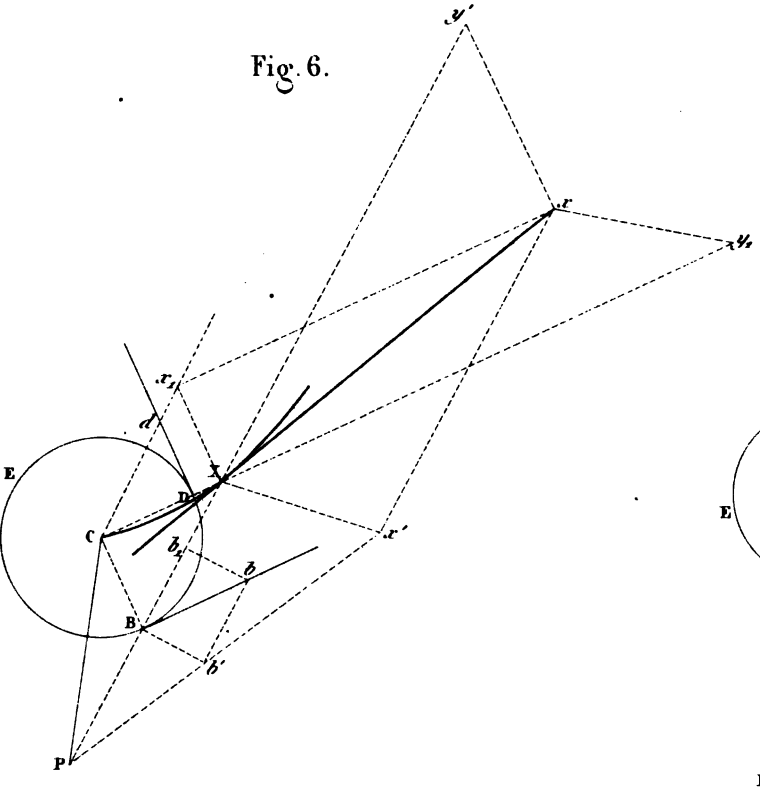


Fig. 7.

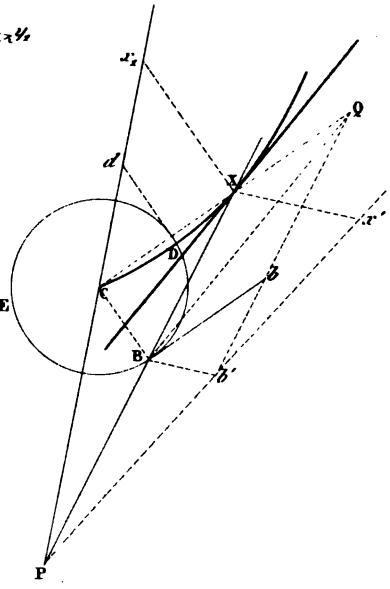


Fig. 8.

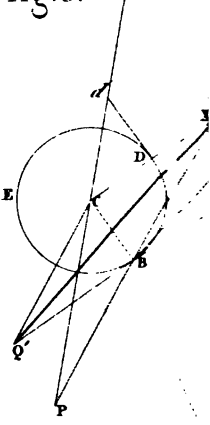


Fig. 5.

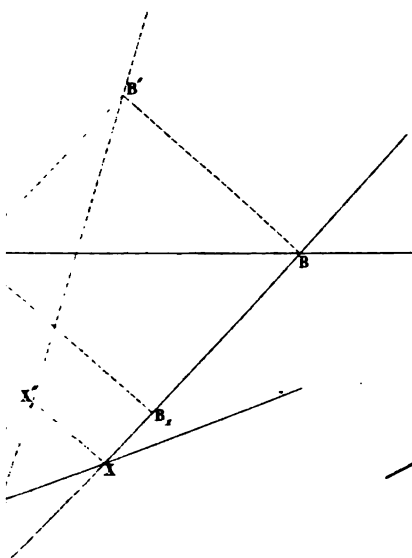


Fig. 4.

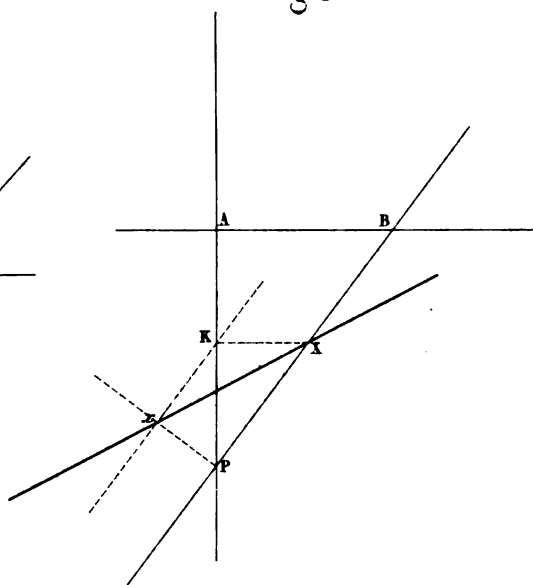


Fig. 5.

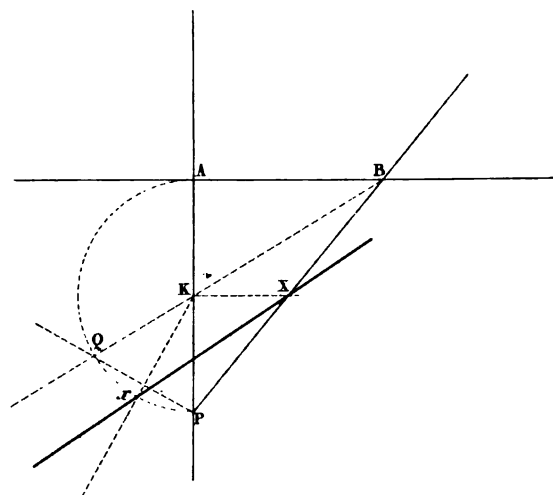


Fig. 10.

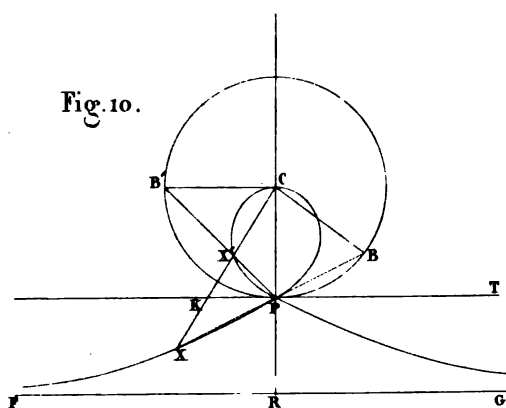


Fig. 12.

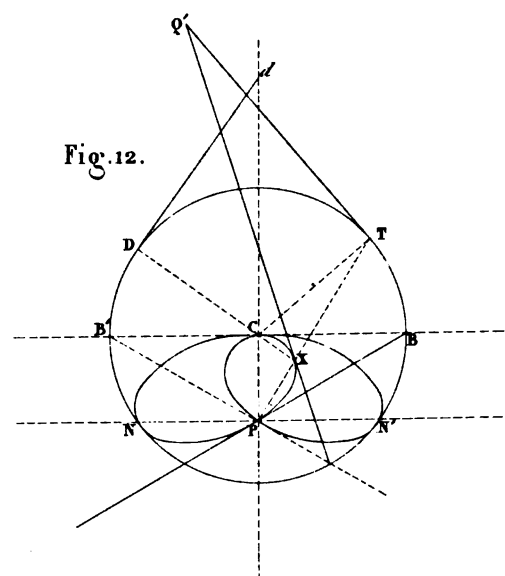


Fig. 9.

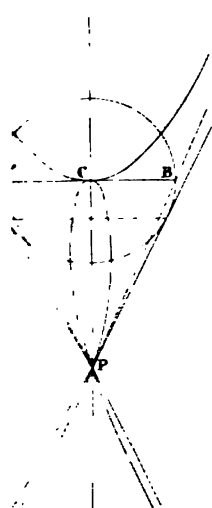


Fig. 11.

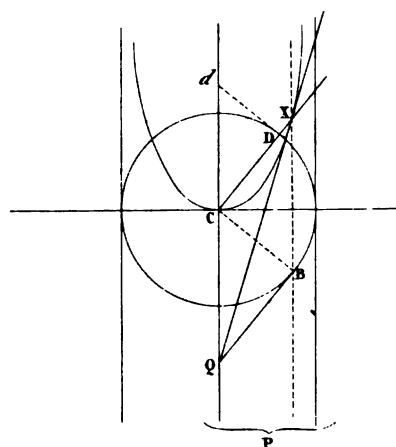
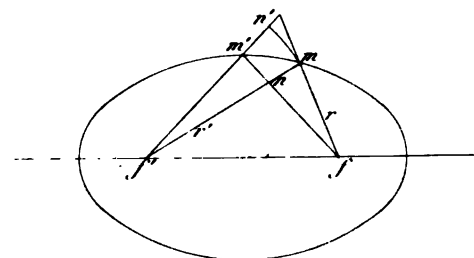


Fig. 13.

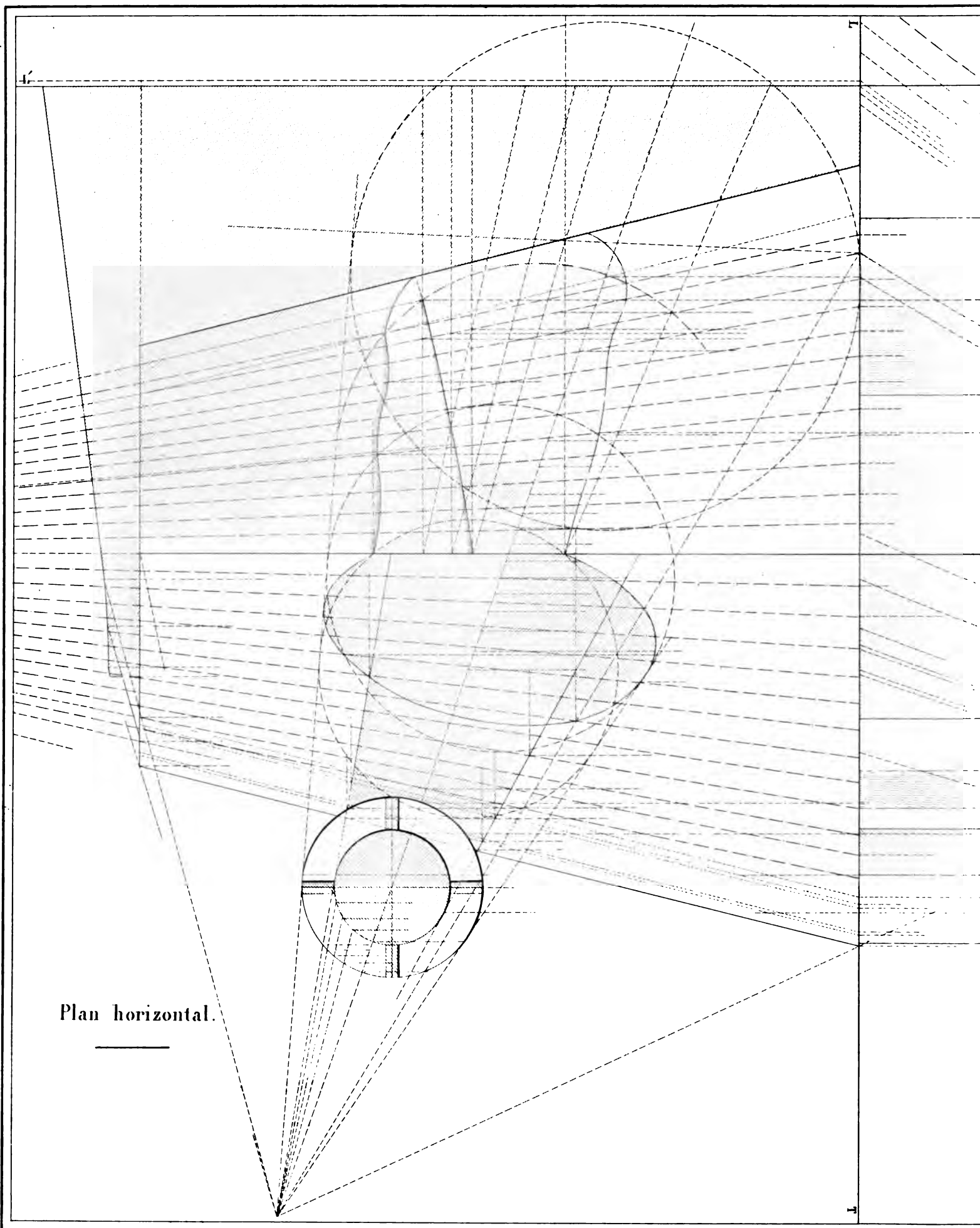








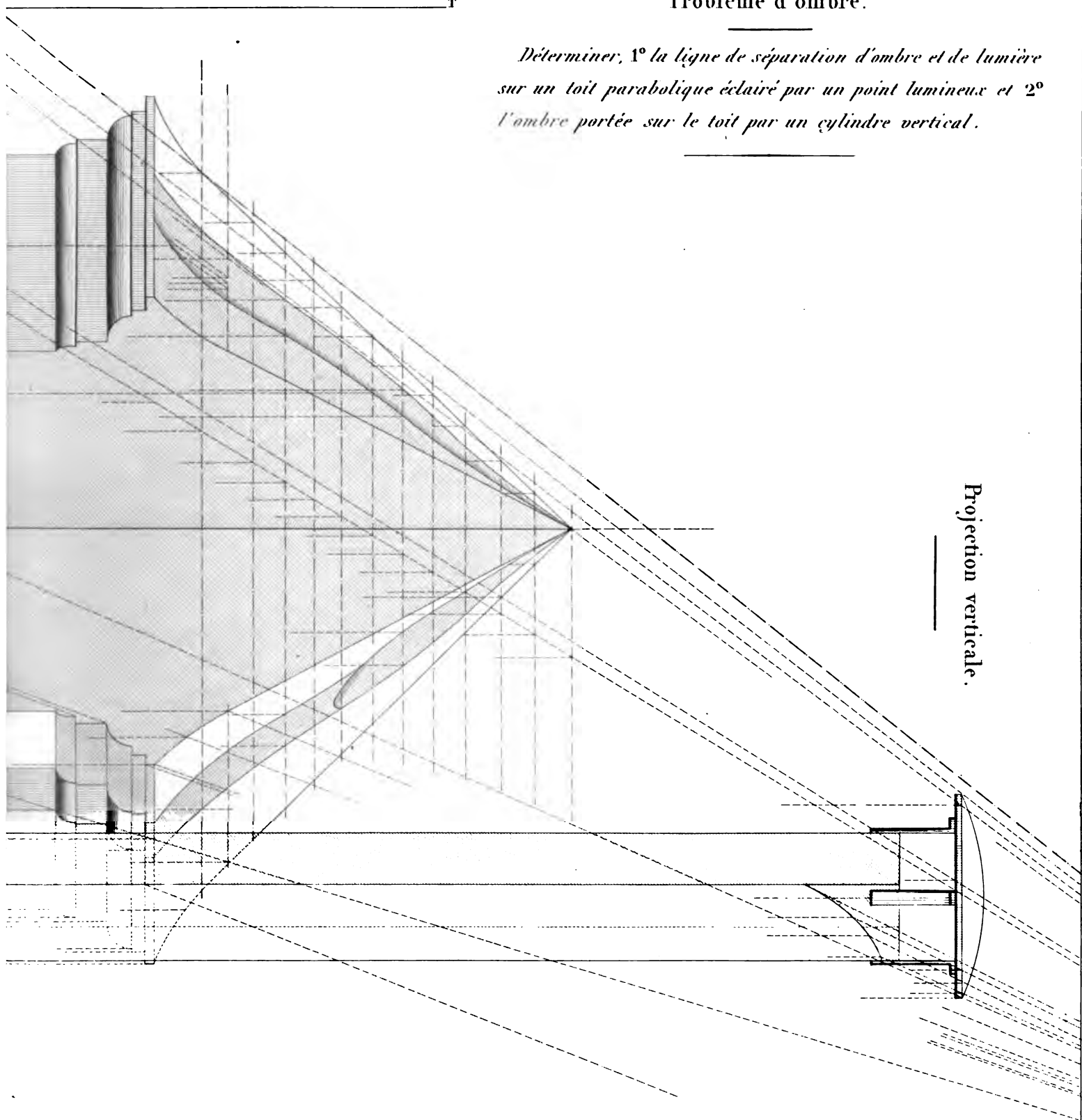
Paraboloïde. (Mémoire N° 7).



*Dessiné par Théodore Olivier (École Polytechnique 1813)*

Problème d'ombre.

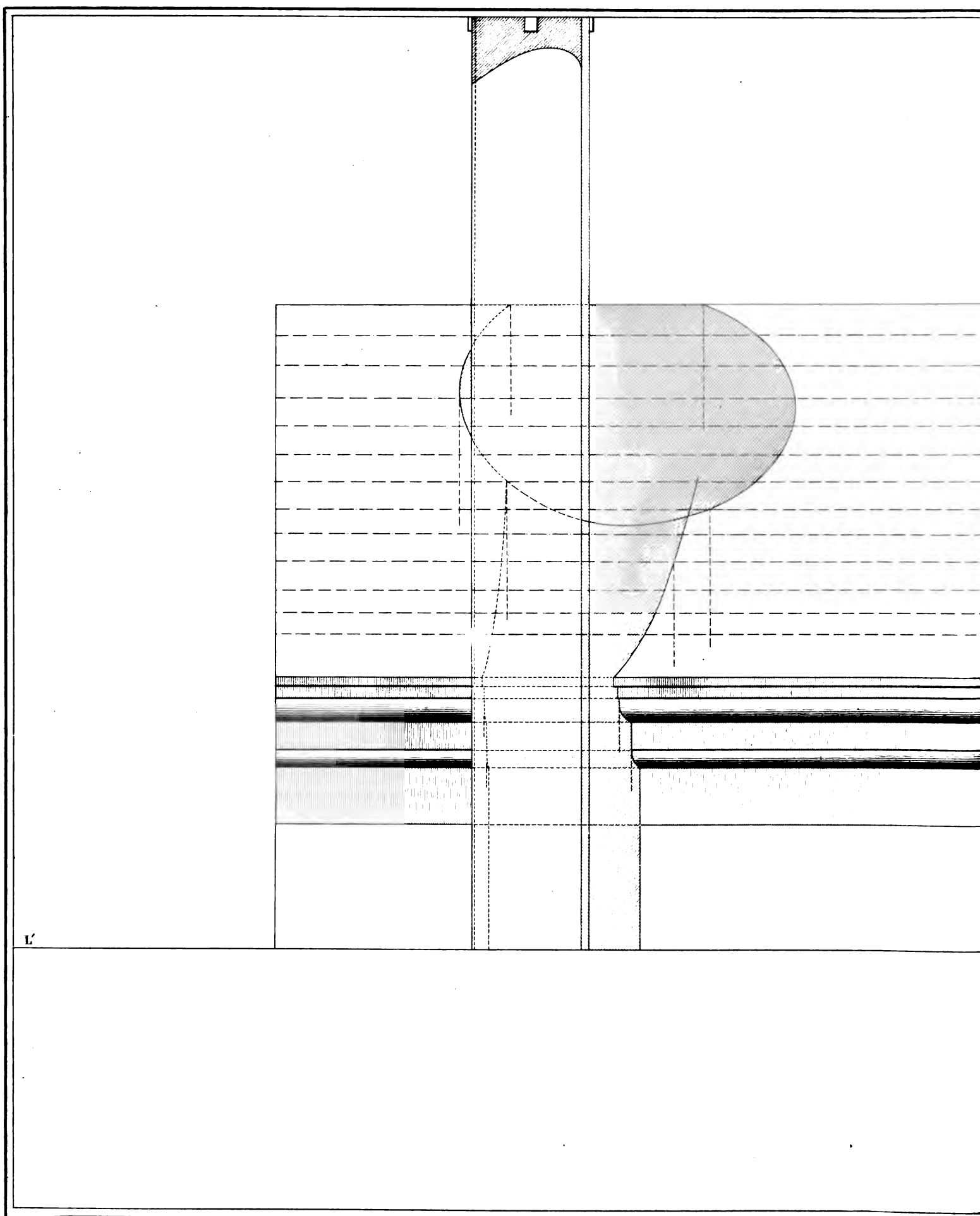
*Déterminer, 1° la ligne de séparation d'ombre et de lumière  
sur un toit parabolique éclairé par un point lumineux et 2°  
l'ombre portée sur le toit par un cylindre vertical.*







Paraboloïde. (Mémoire N° 7).



Dessiné par Théodore Olivier (École Polytechnique, 1813).

T

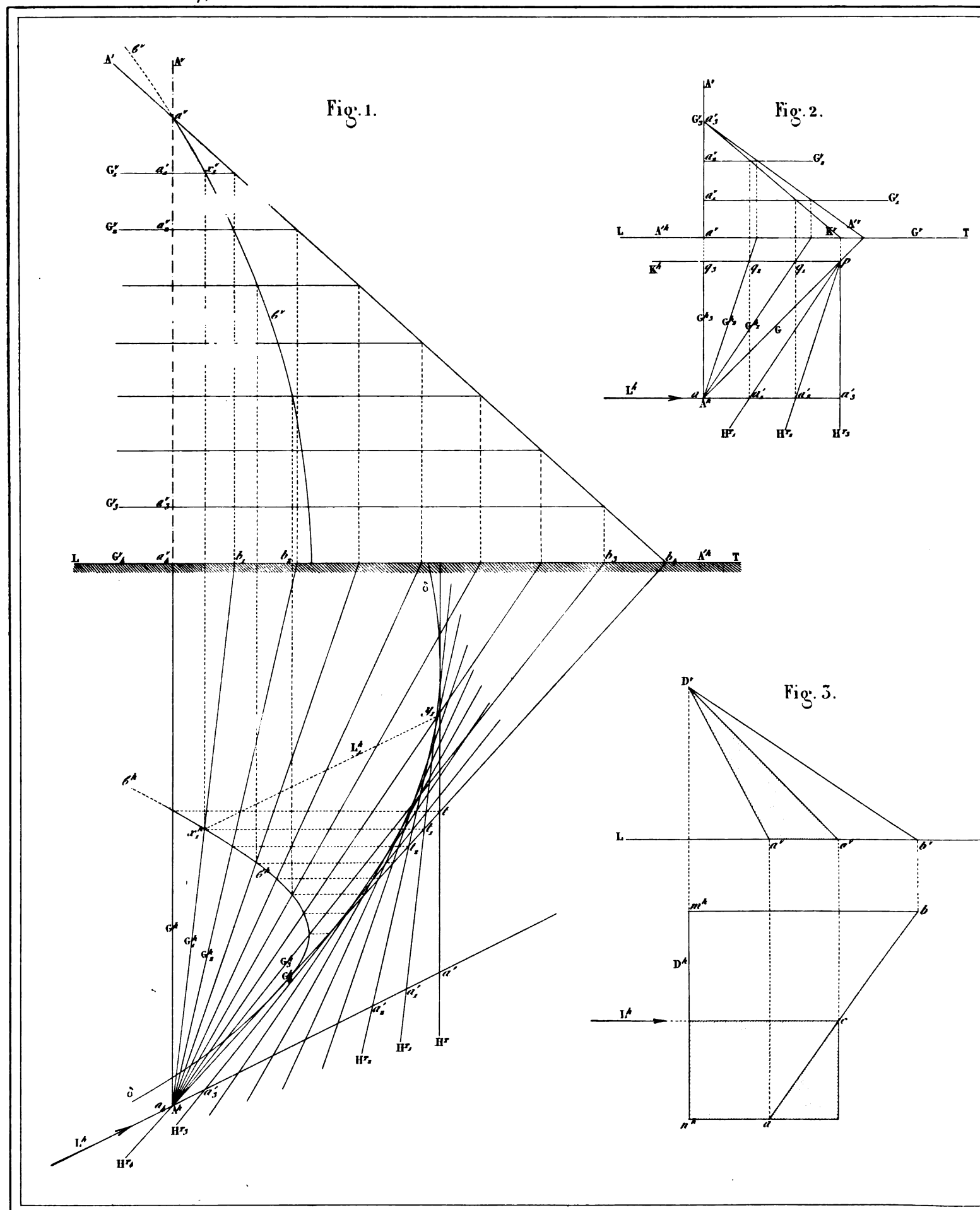
Seconde Projection verticale sur le Plan L' T'

T'









Surfaces développables. (Mémoire N° 8).

Fig. 1.

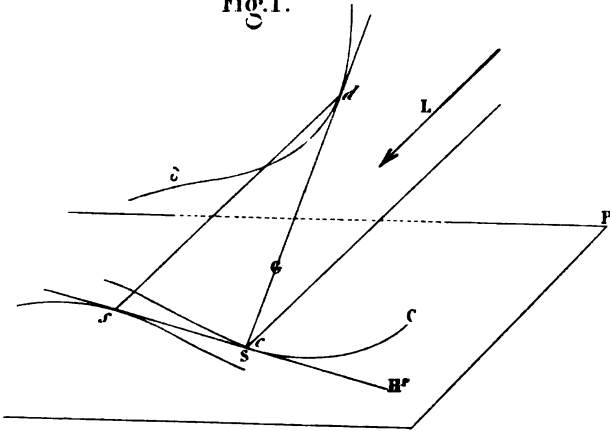


Fig. 2.

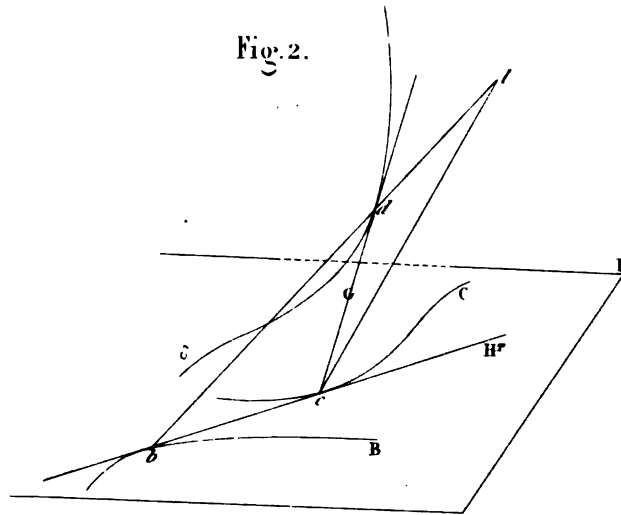


Fig. 3.

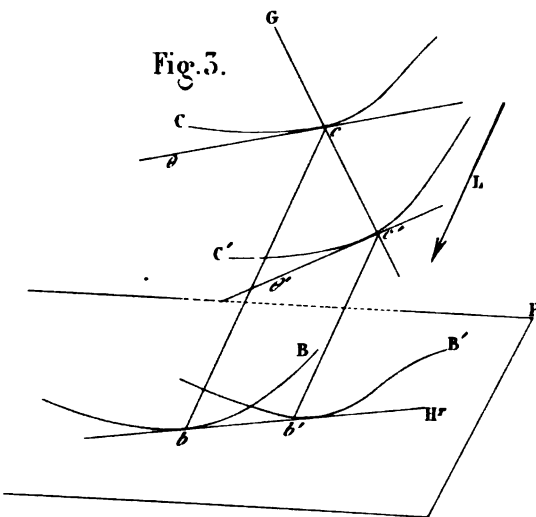


Fig. 4.

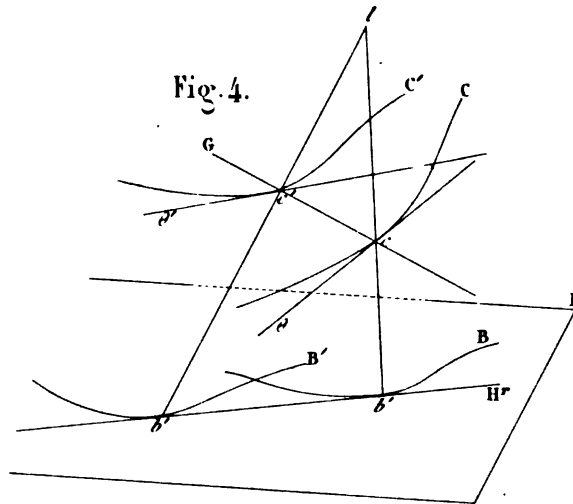


Fig. 5.

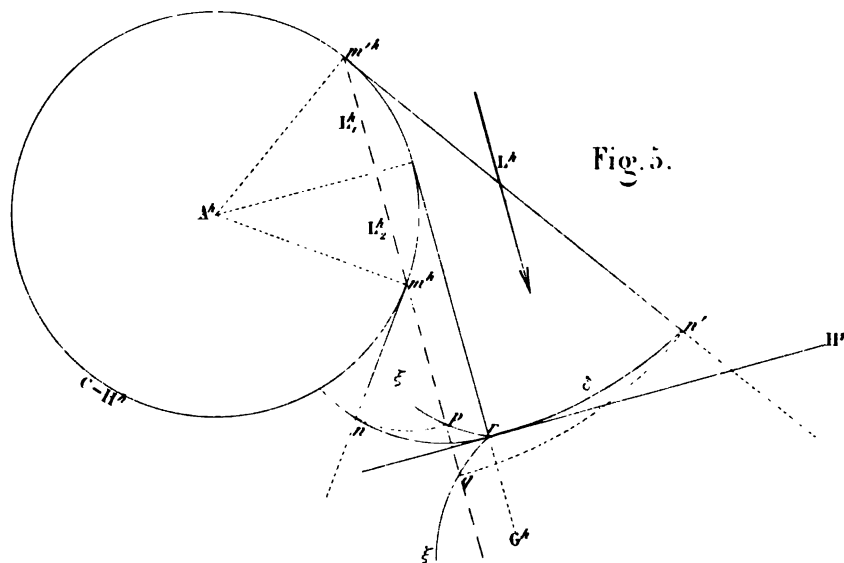






Fig. 6.

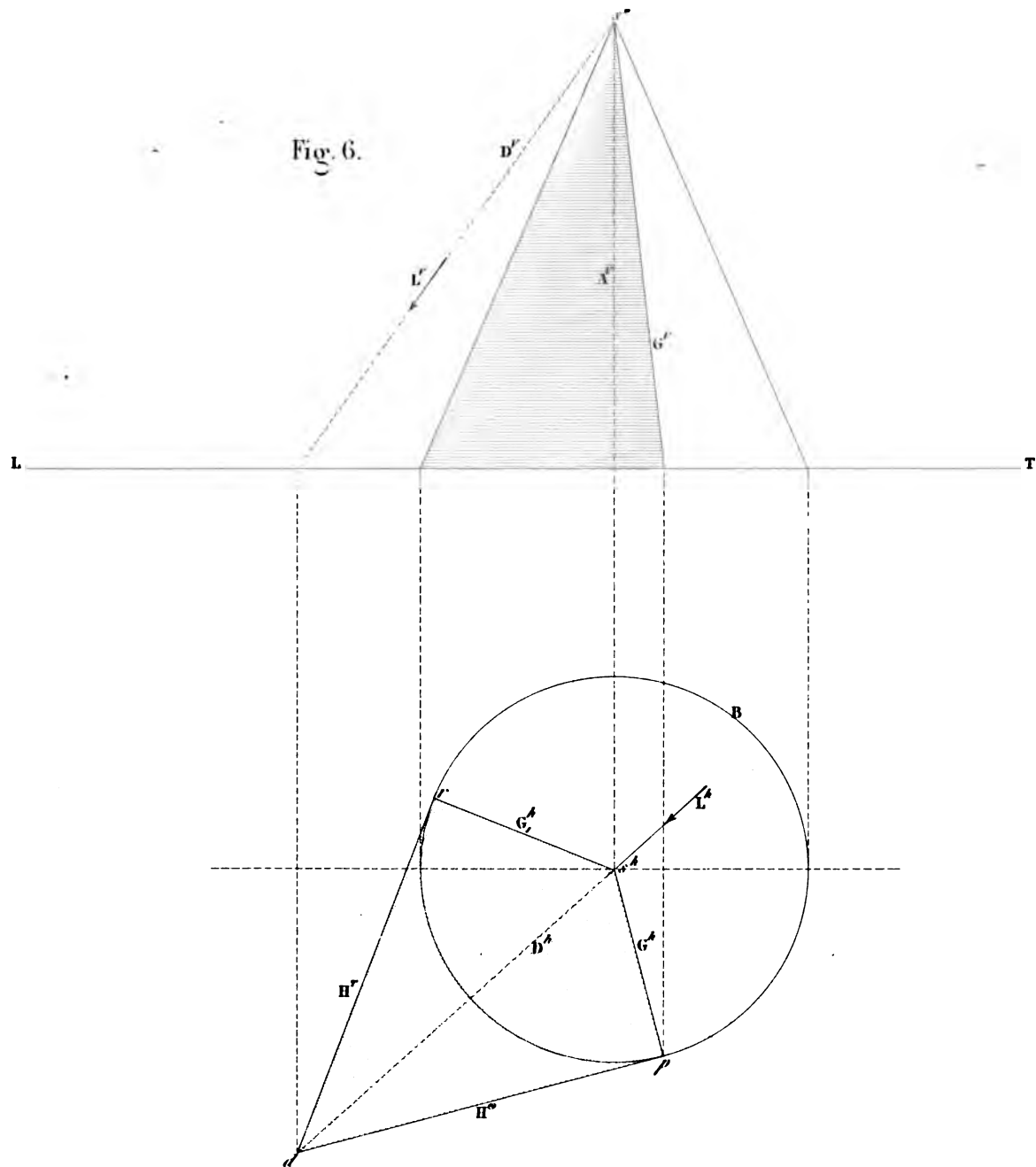
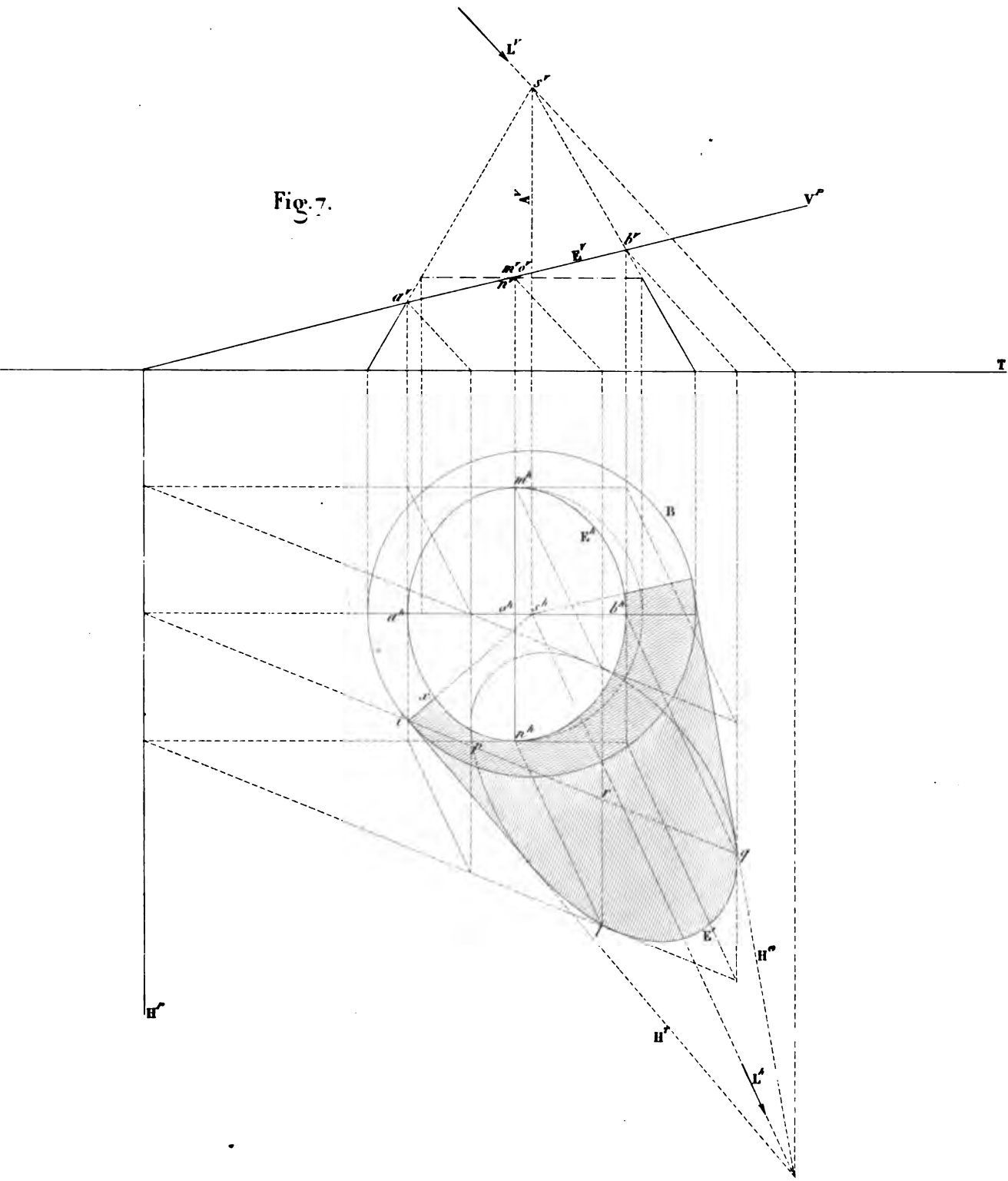


Fig. 7.









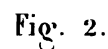


Fig. 4.

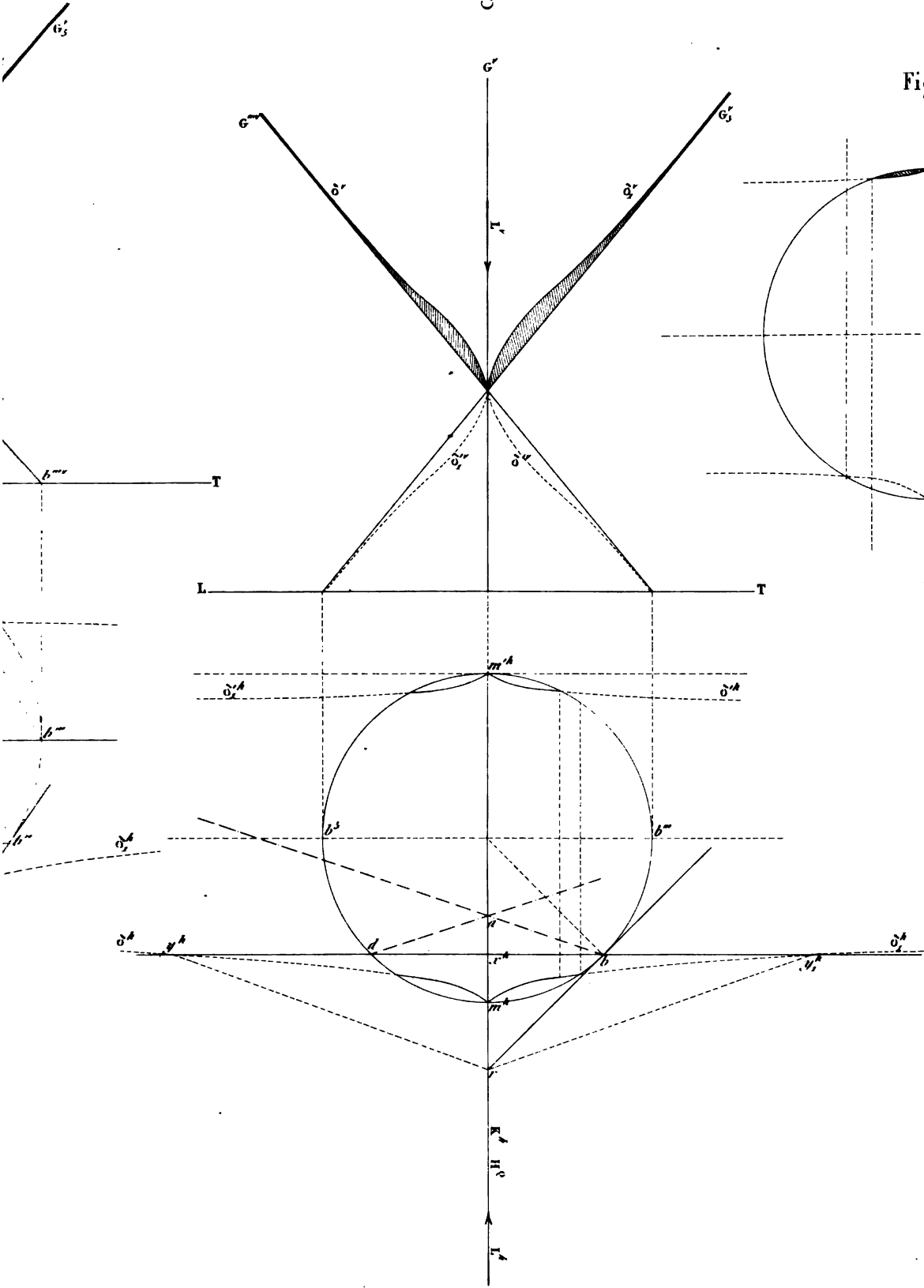


Fig. 5.

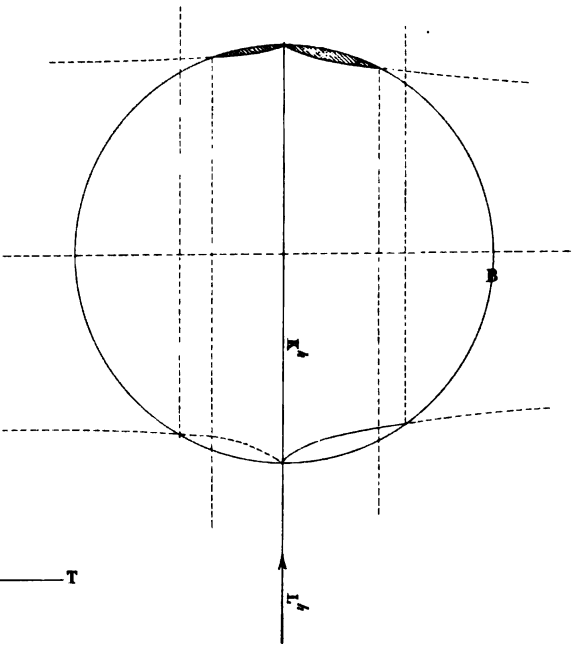






Fig. 6.

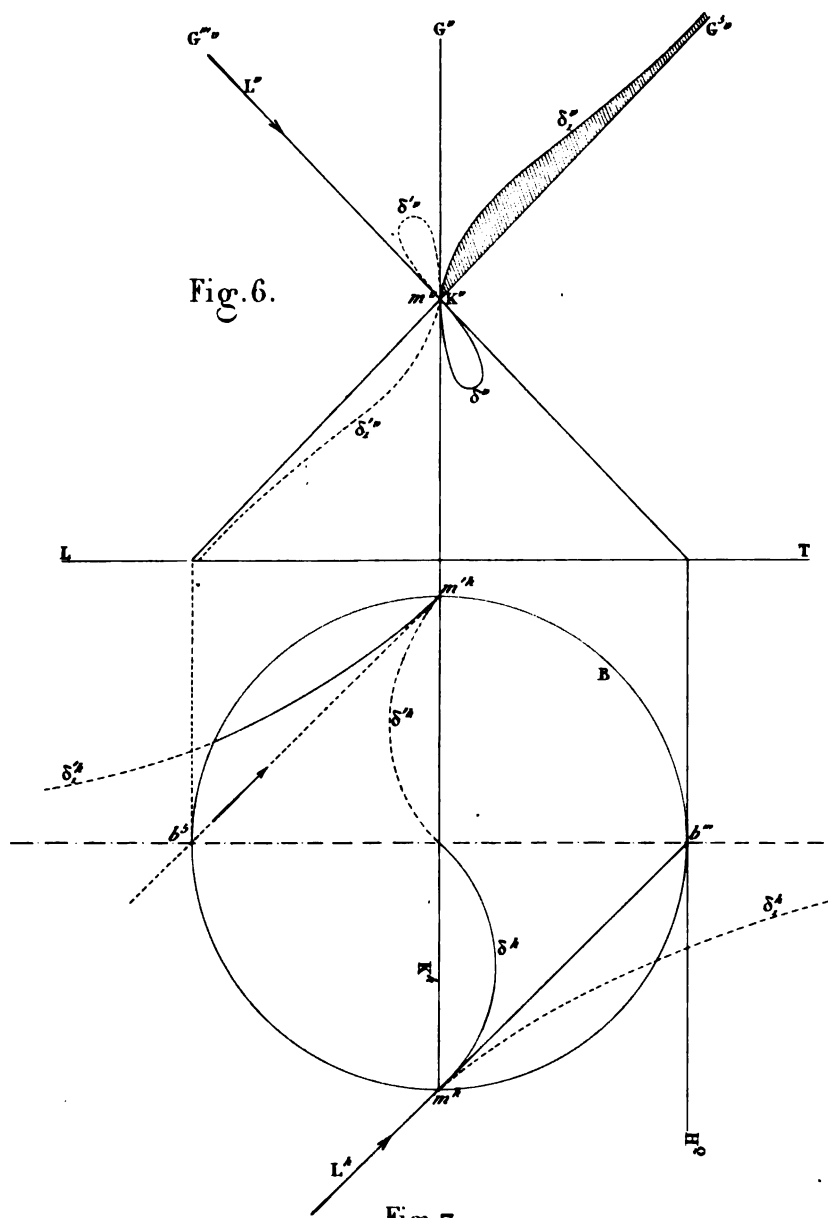


Fig. 8.

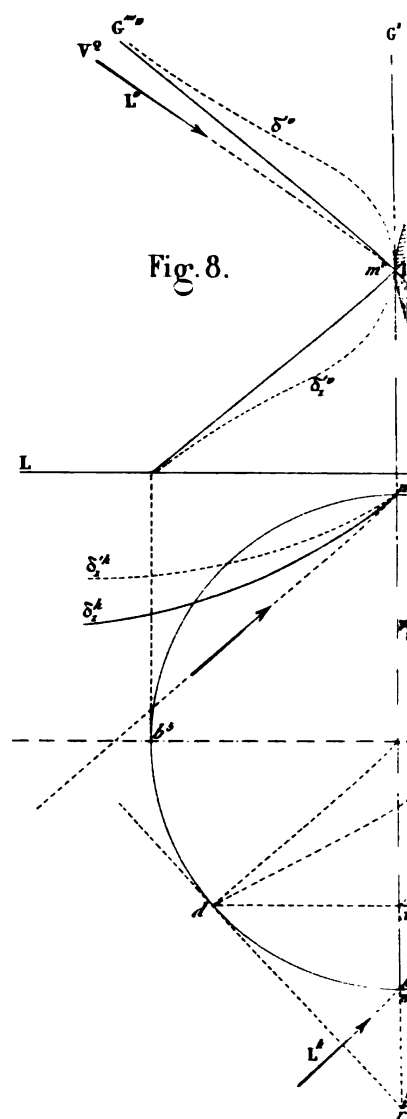


Fig. 7.

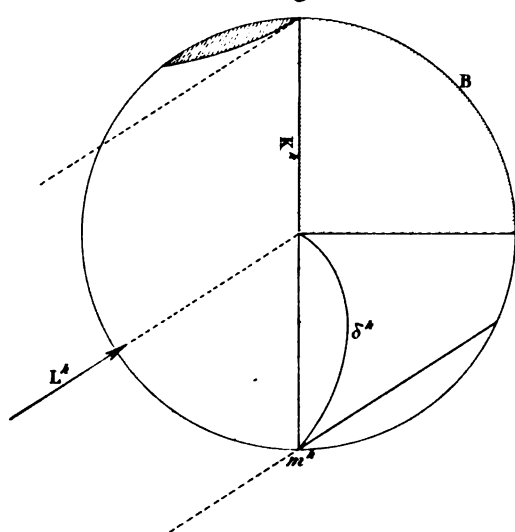
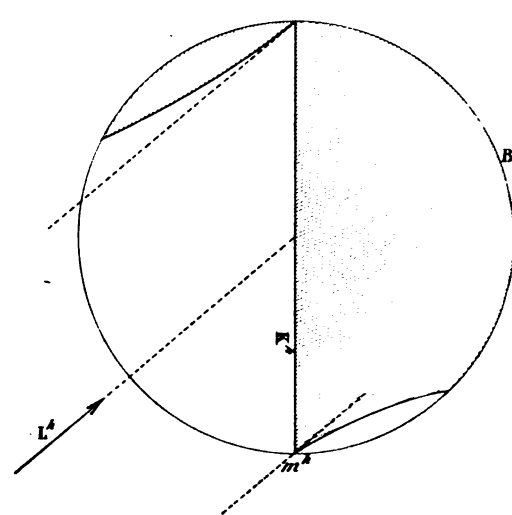


Fig. 9.



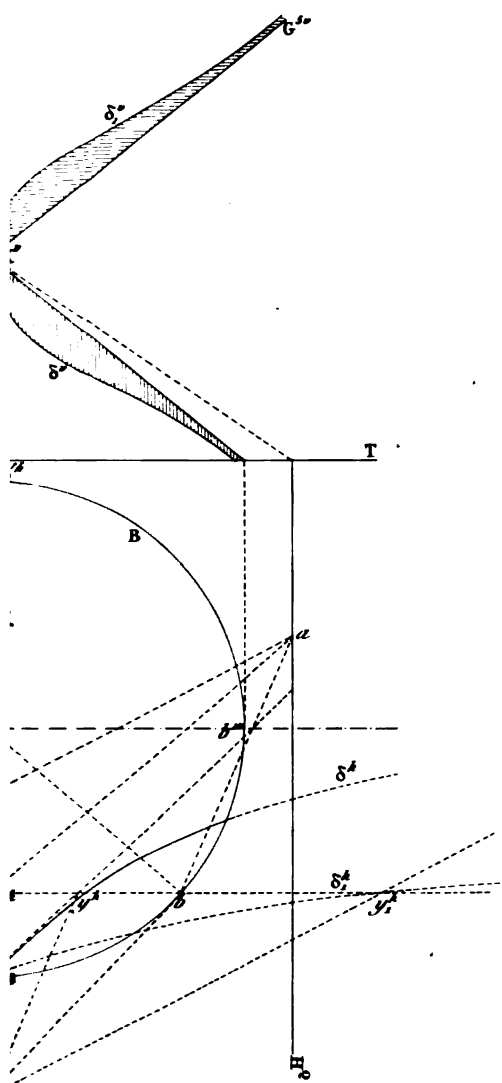


Fig. 11.

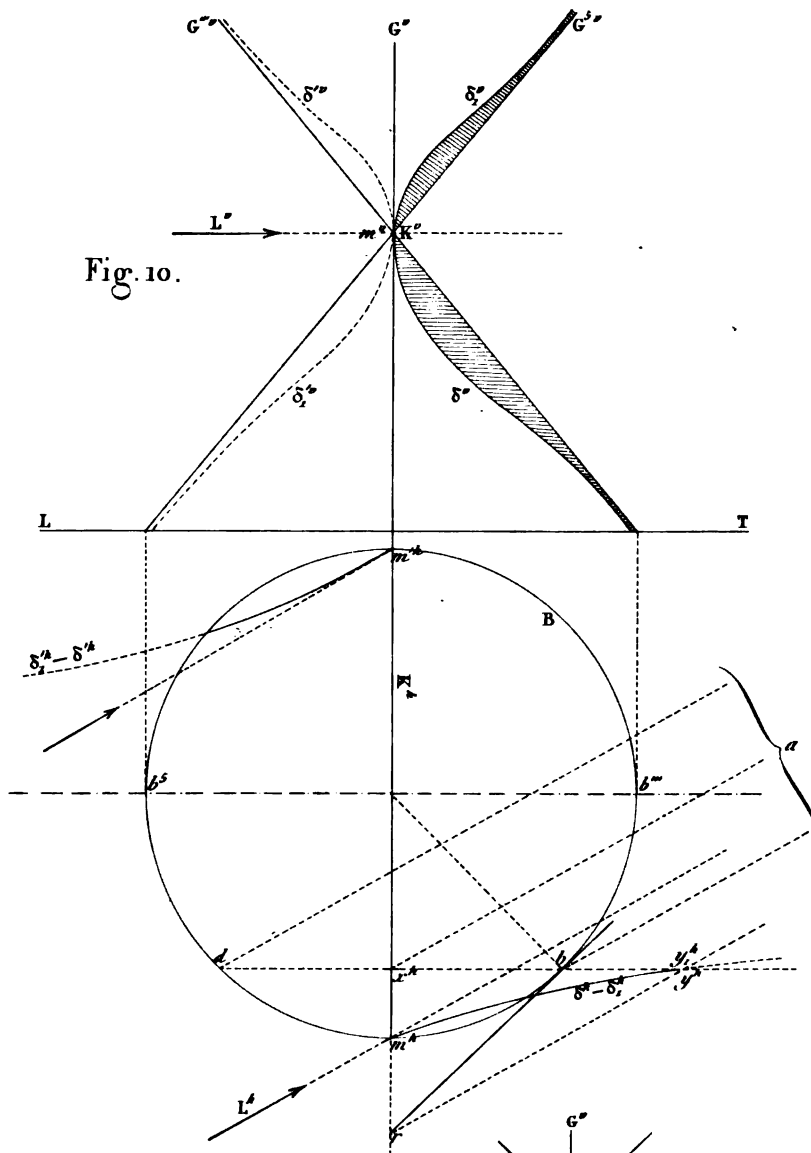
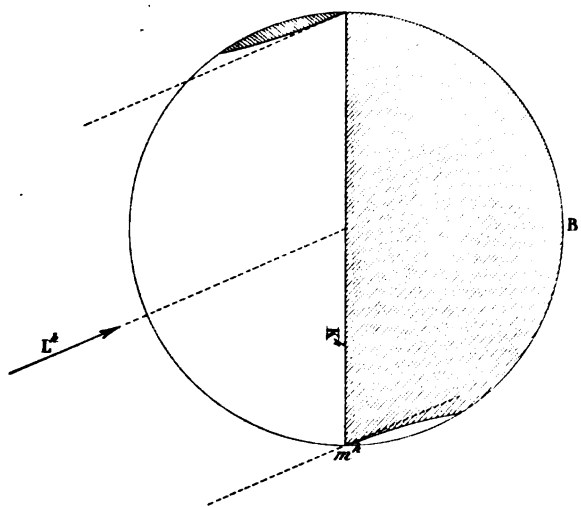


Fig. 12.

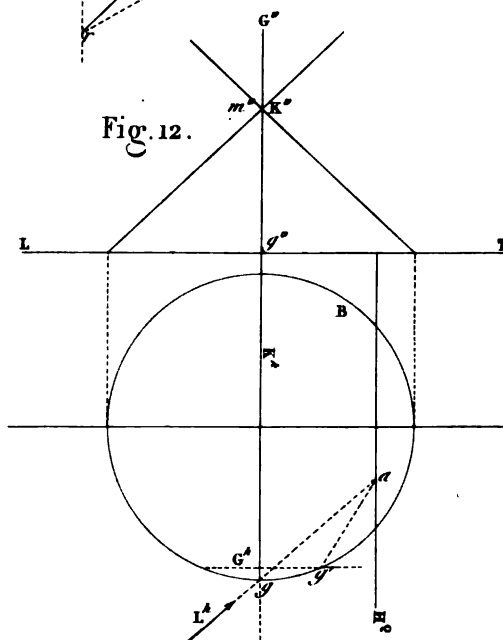








Fig. 14.

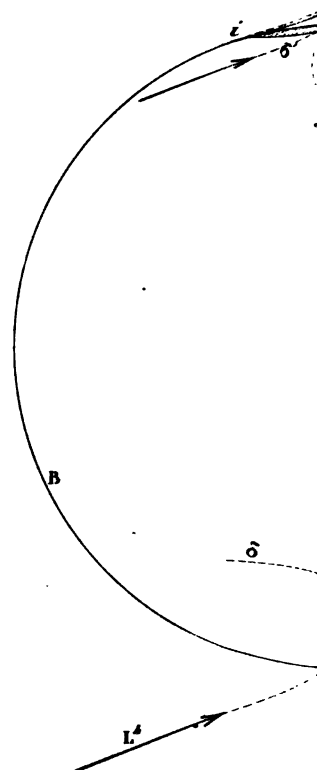
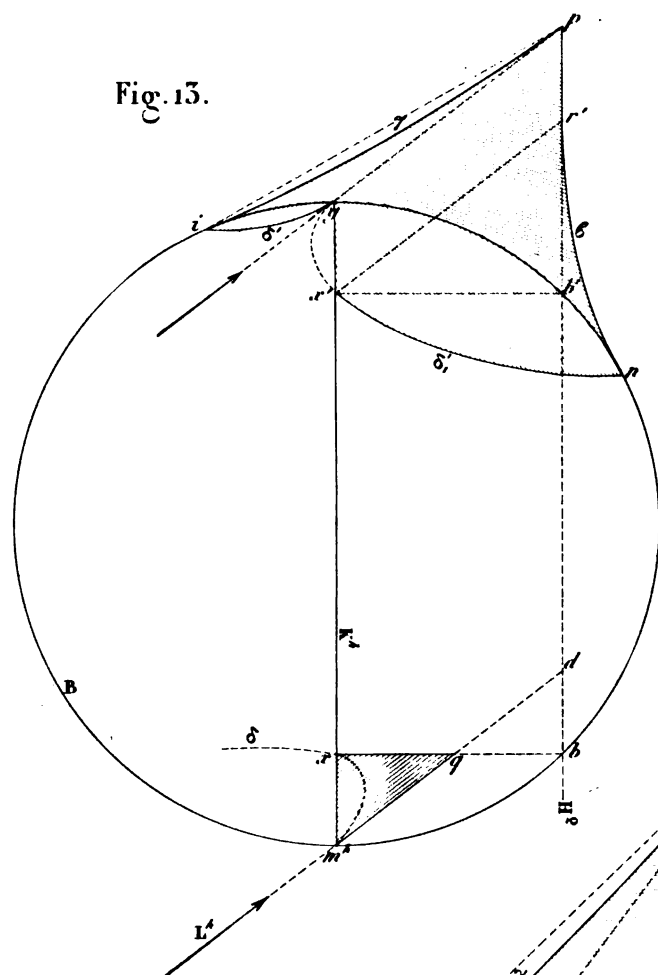


Fig. 16.

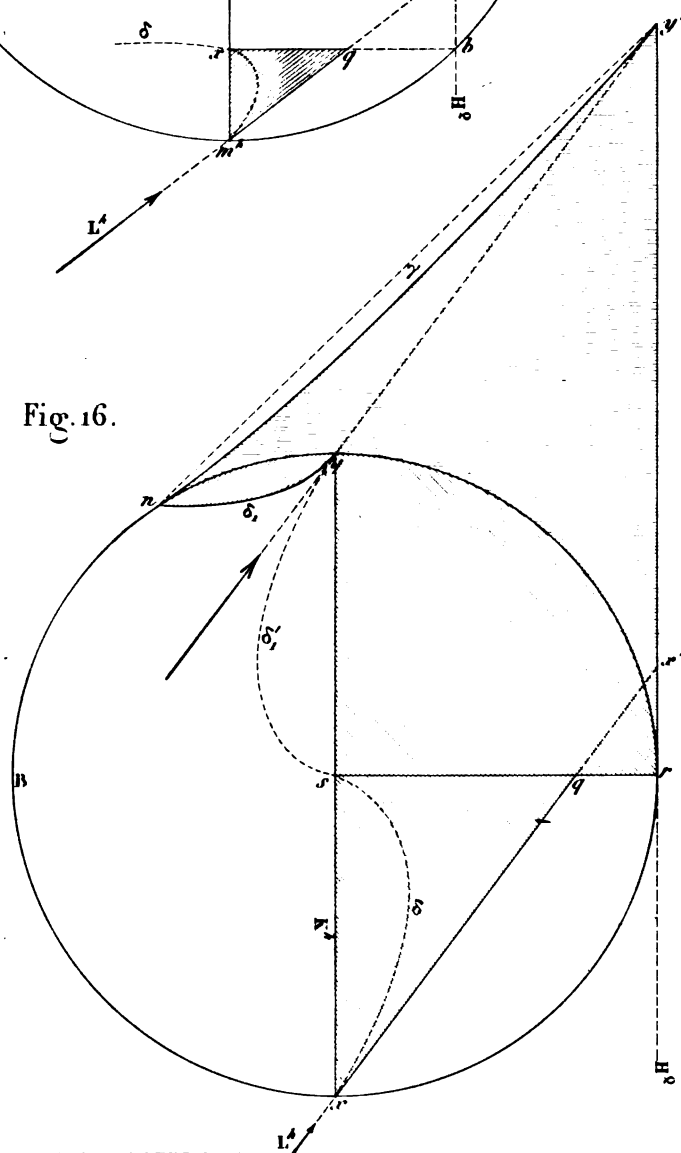


Fig. 17.

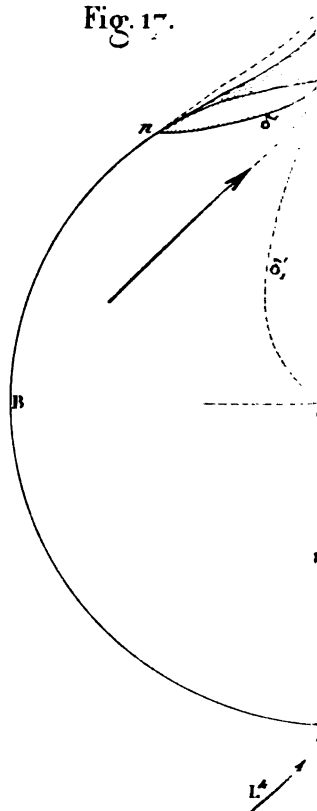


Fig. 15.

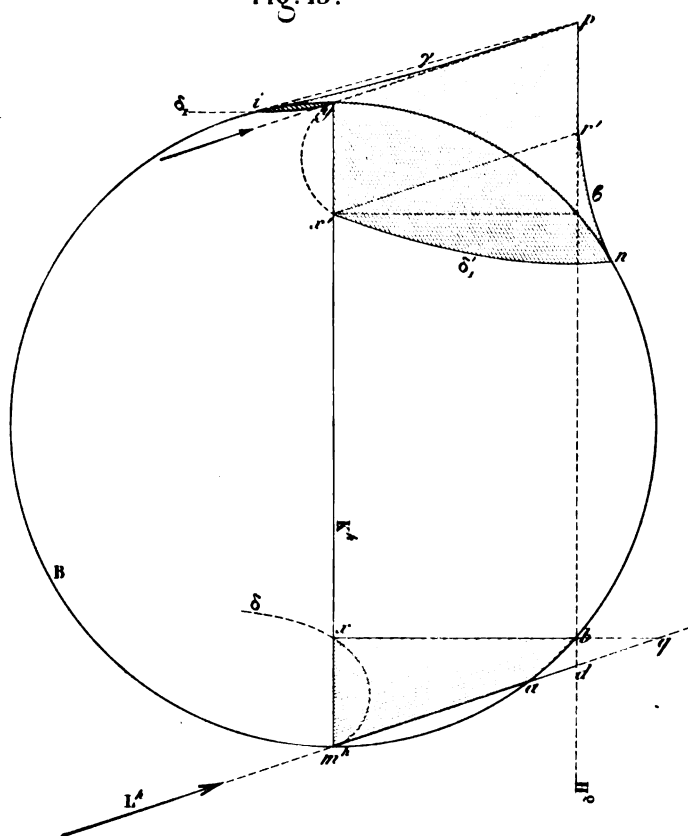
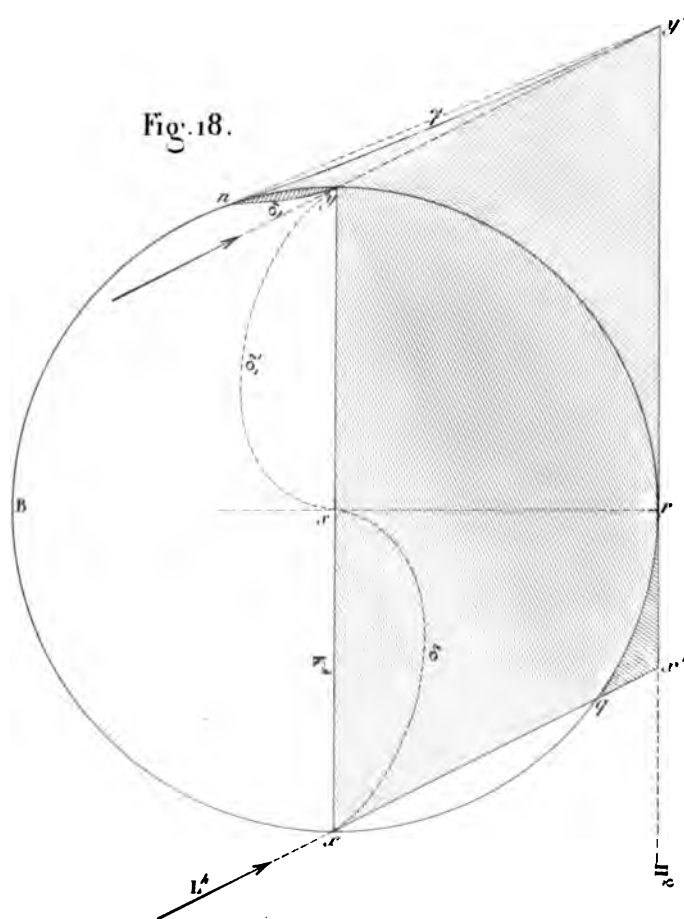
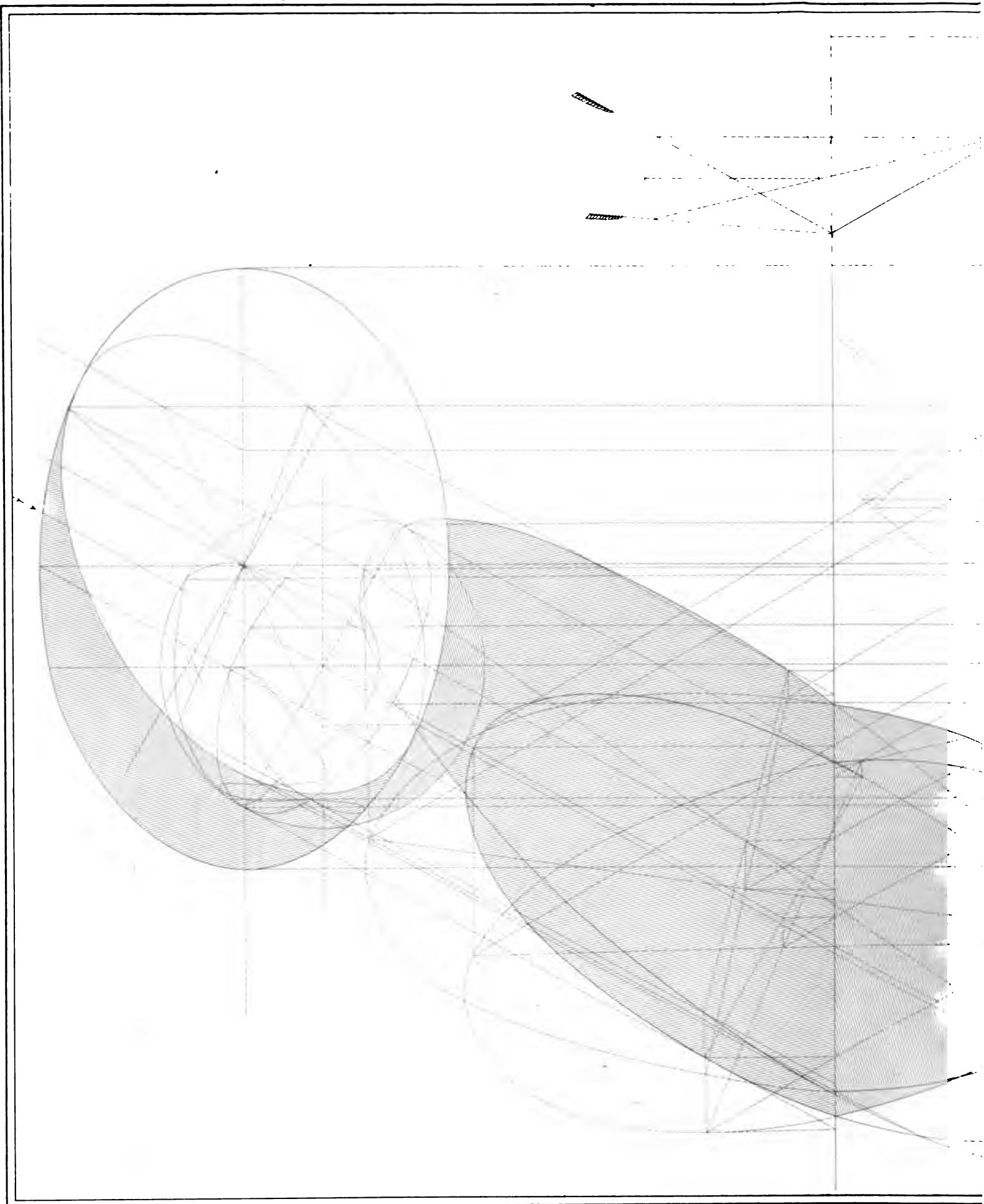


Fig. 18.



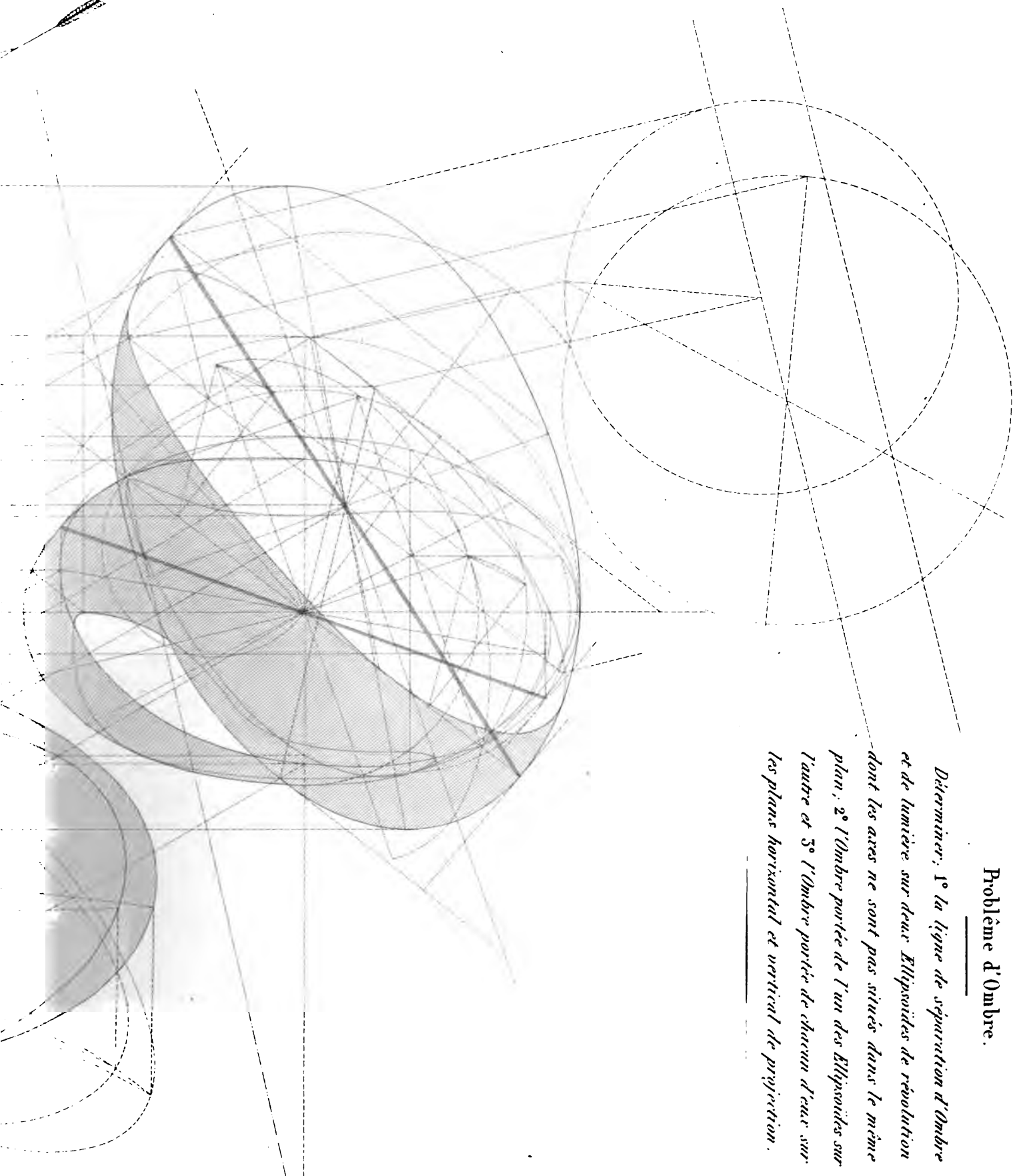






Problème d'Ombre.

*Déterminer, 1° la ligne de séparation d'Ombre et de lumière sur deux Ellipsoïdes de révolution dont les axes ne sont pas situés dans le même plan; 2° l'Ombre portée de l'un des Ellipsoïdes sur l'autre et 3° l'Ombre portée de chacun d'eux sur les plans horizontal et vertical de projection.*











APPLICATIONS DE LA GÉOMÉTRIE DESCRIPTIVE.  
OMBRES.

LAVES.







(Mémoire N° 1.)

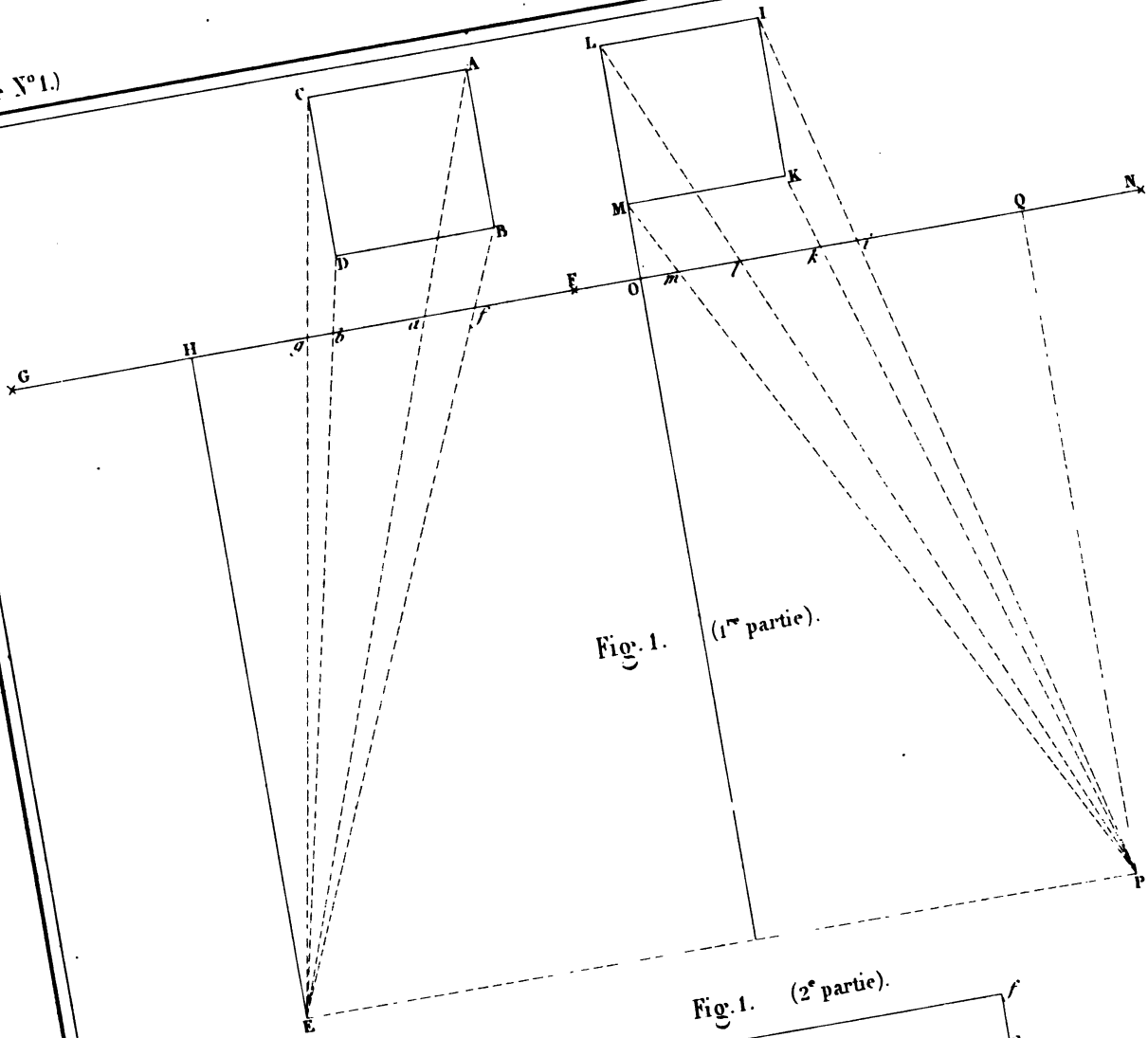


Fig. 1. (1<sup>re</sup> partie).

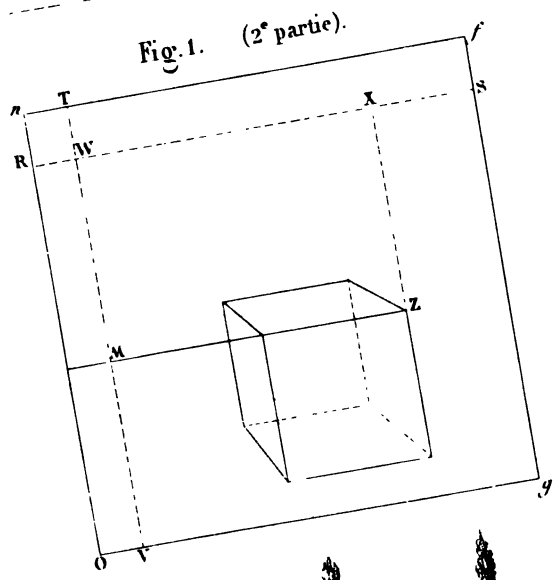


Fig. 1. (2<sup>e</sup> partie).

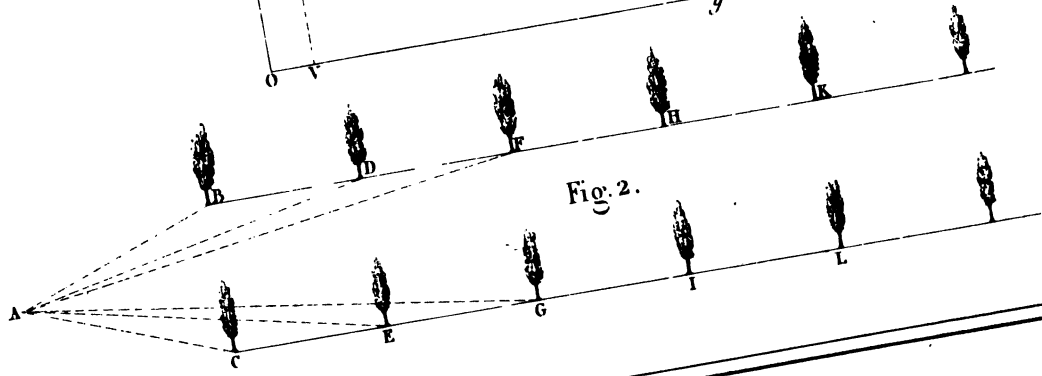


Fig. 2.

Fig. 3. (1<sup>re</sup> partie).

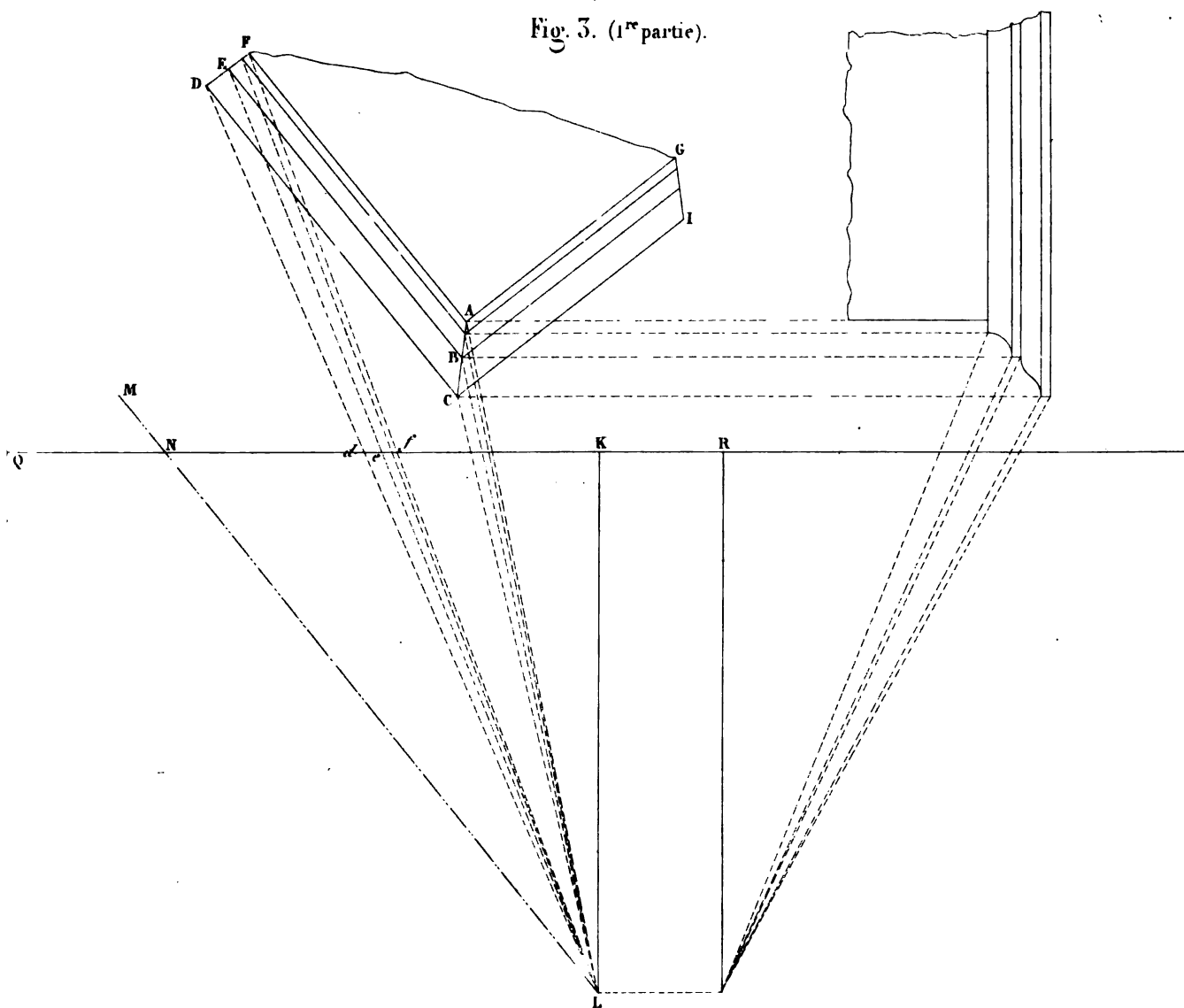
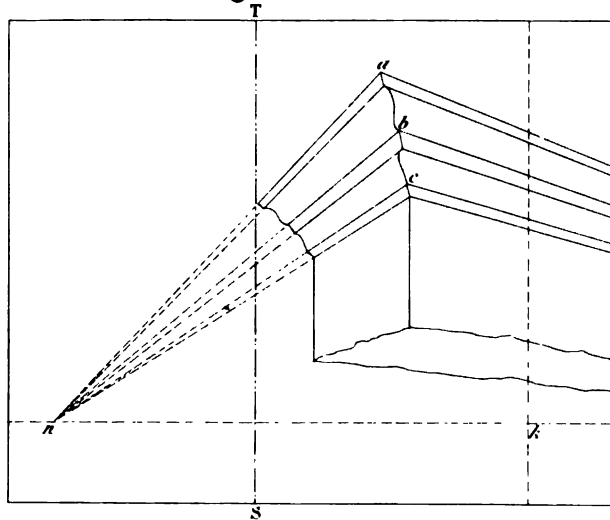


Fig. 3. (2<sup>e</sup> partie).









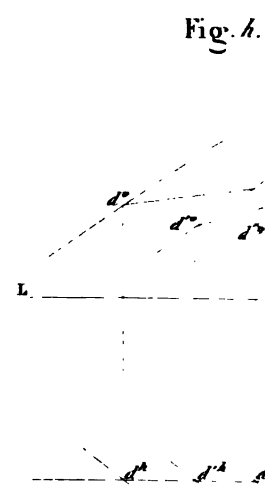
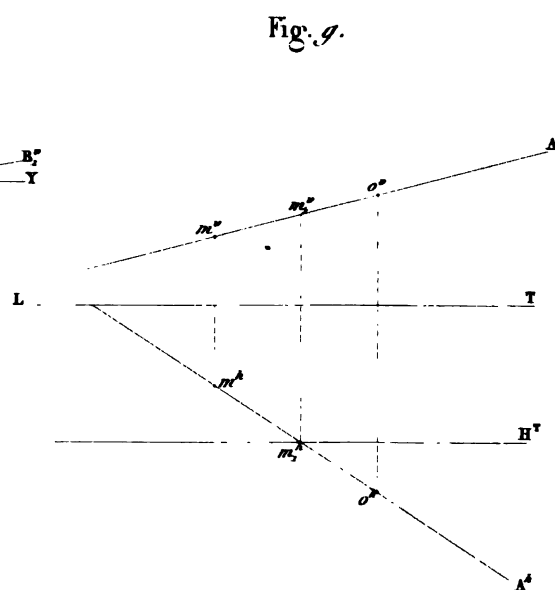
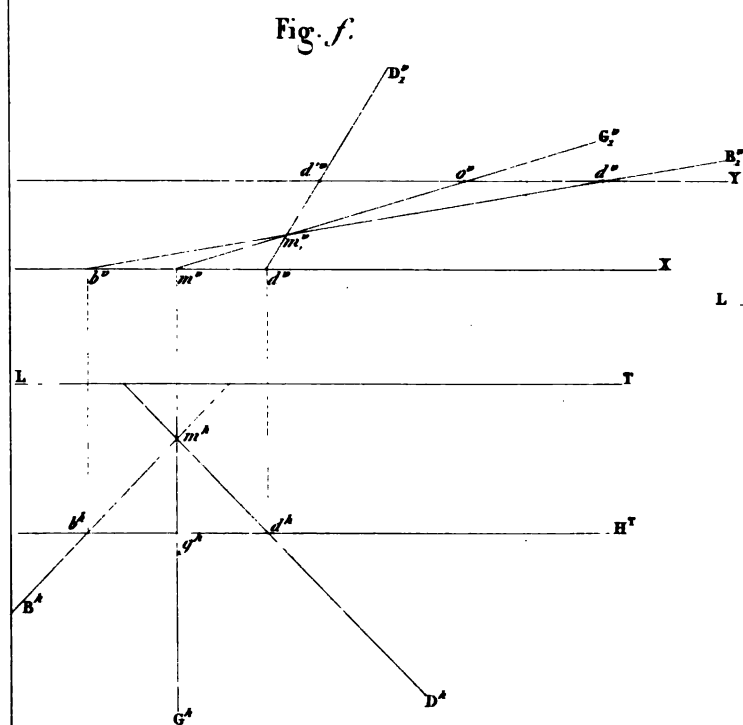
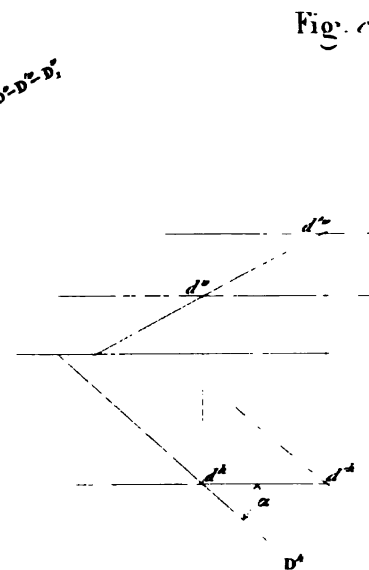
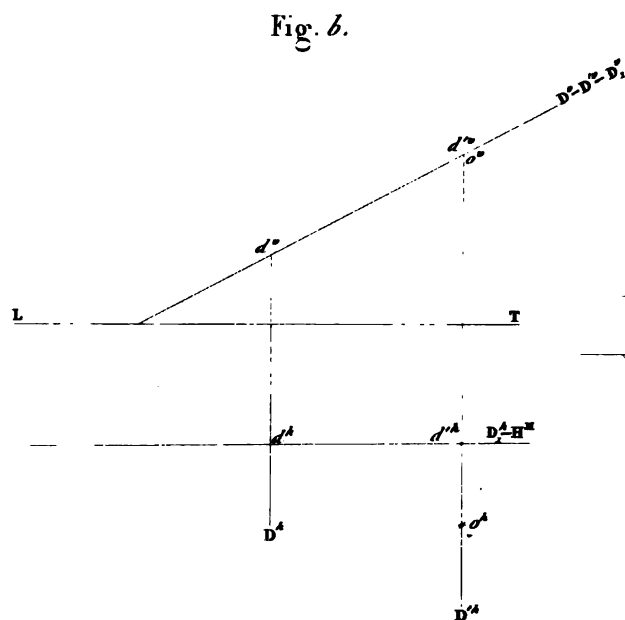
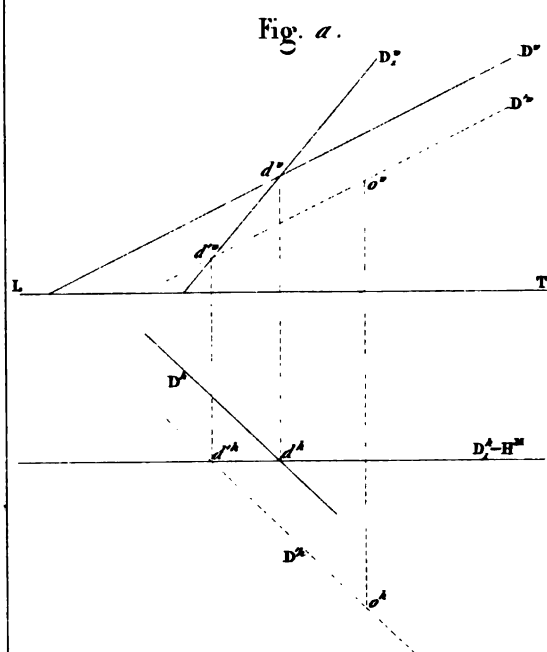


Fig. *d*.

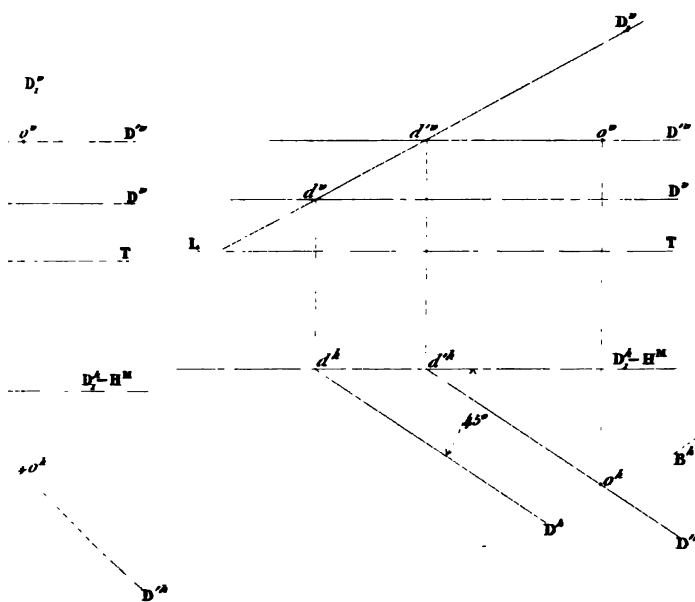
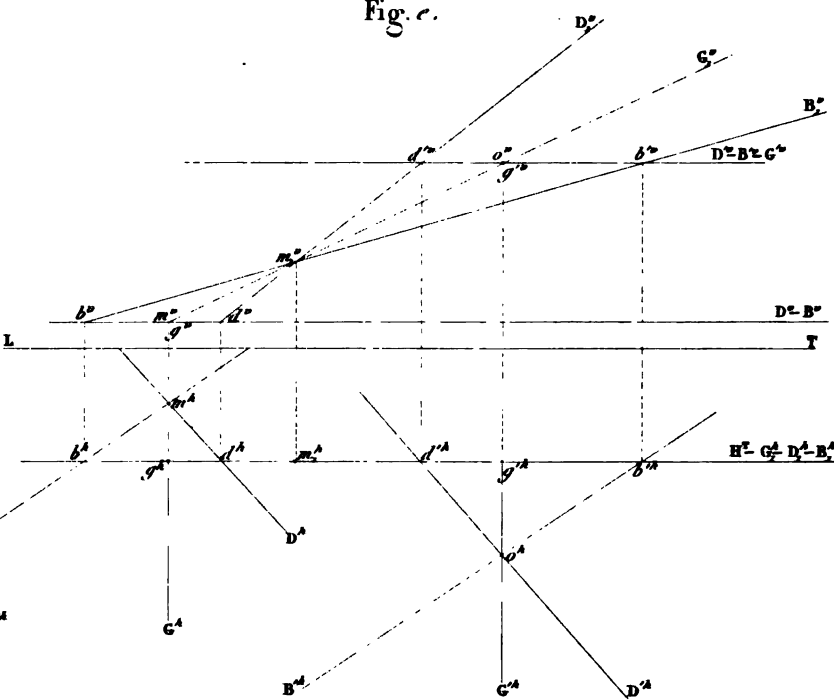


Fig. 6.



**Fig. 1.**

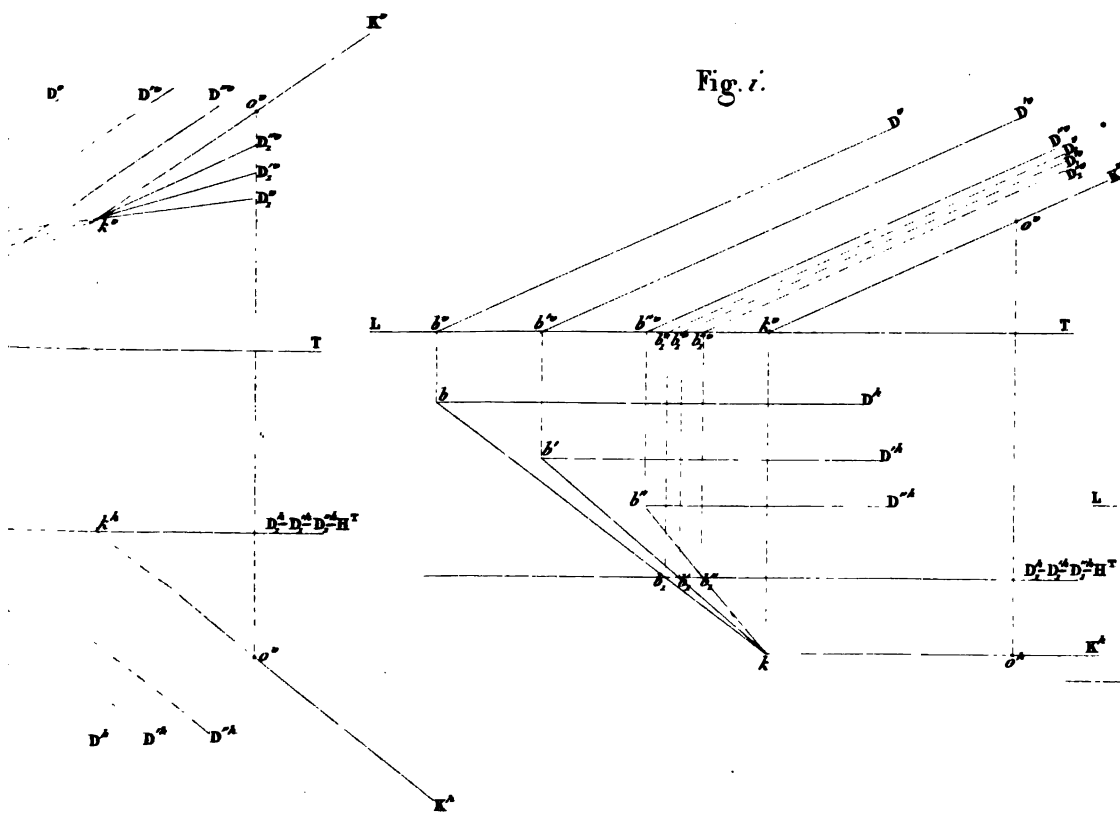


Fig. 4.

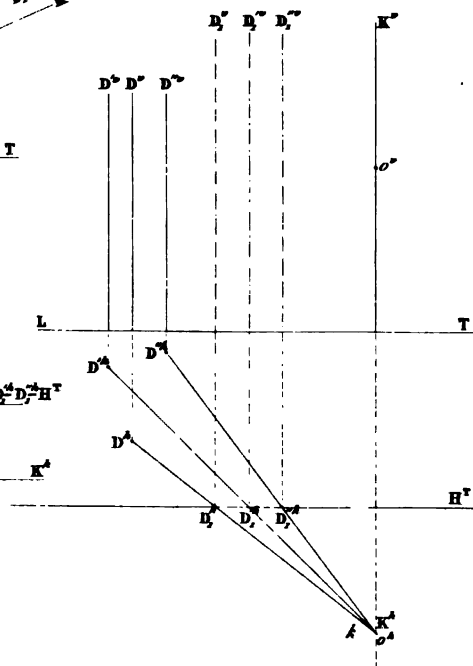






Fig. 7.

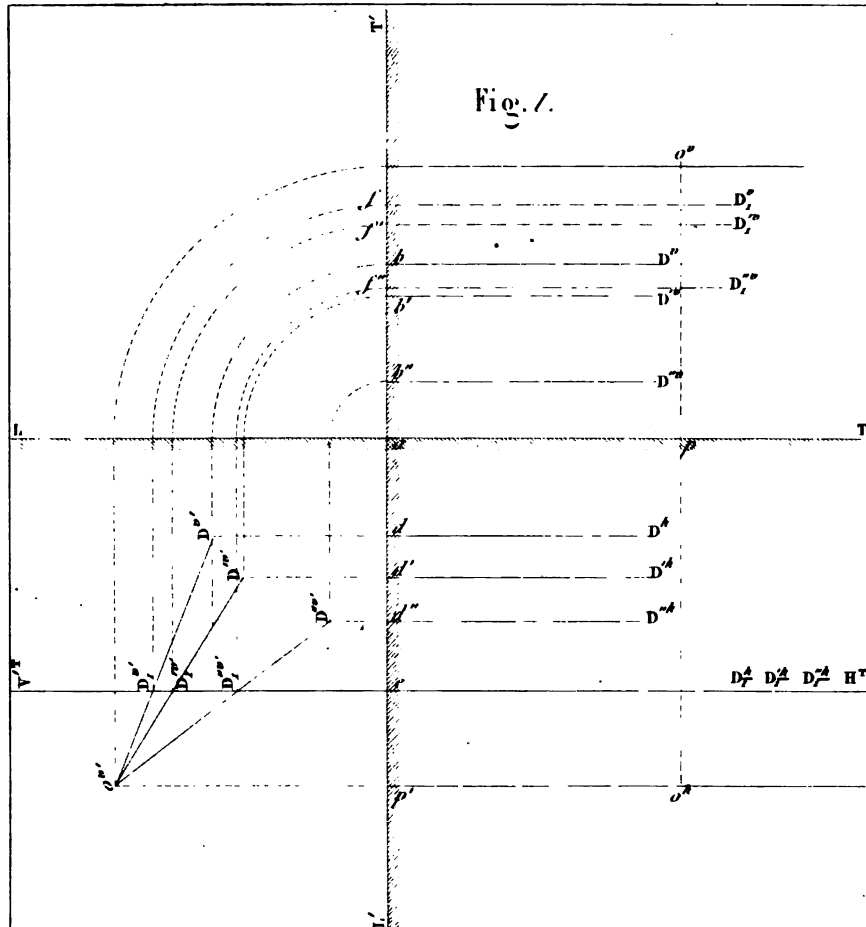


Fig. 8.

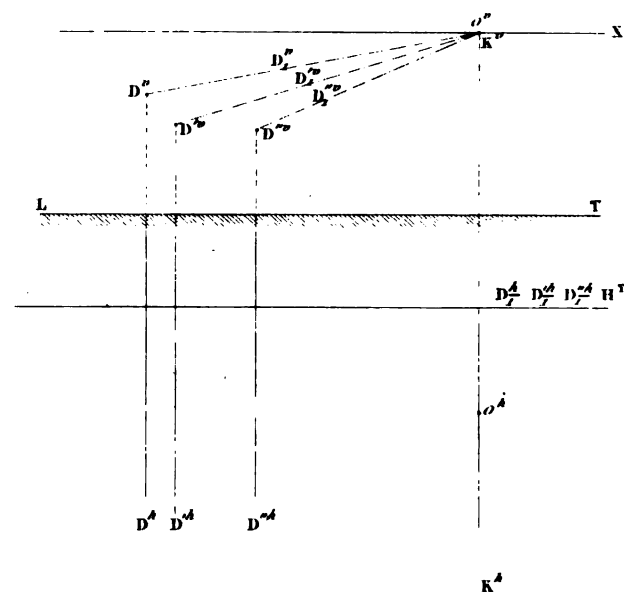


Fig. 9.

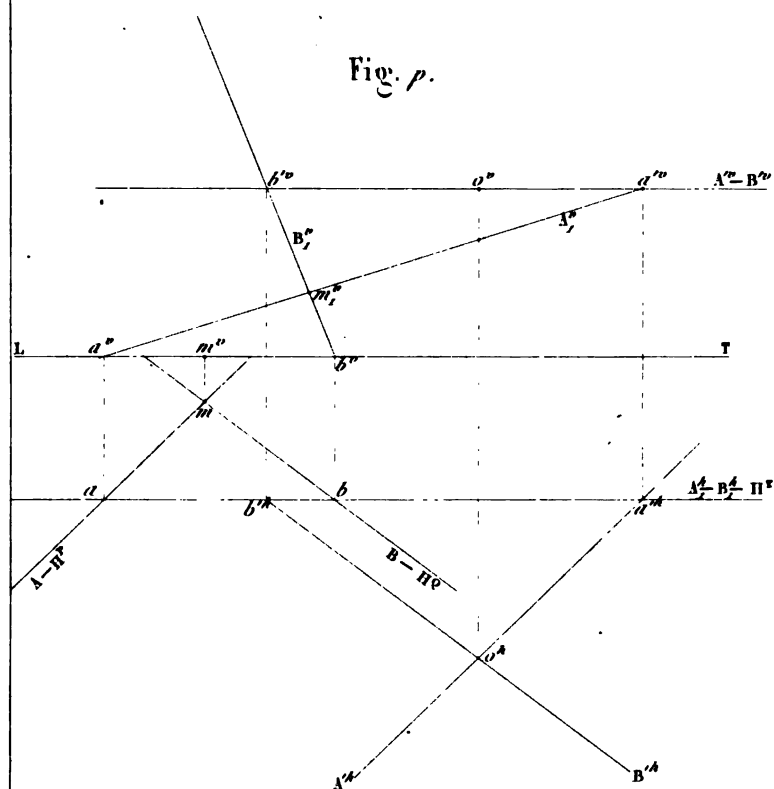


Fig. 10.

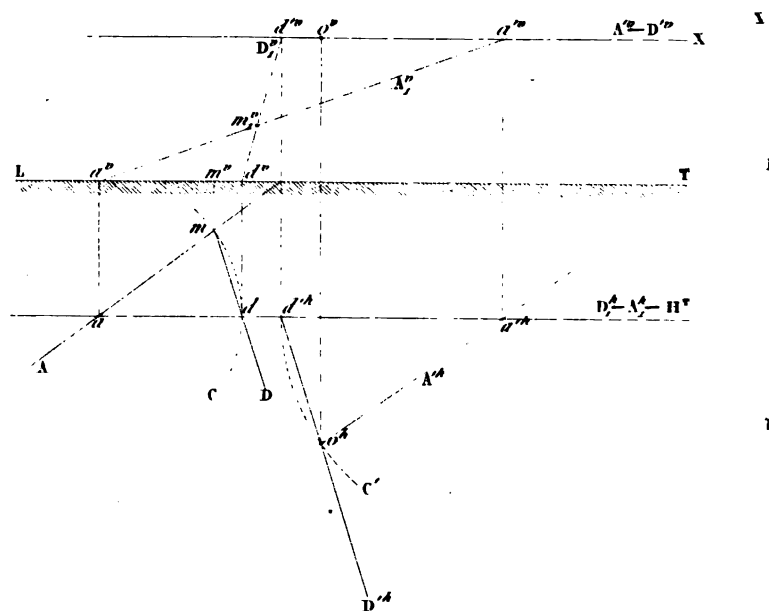


Fig. 11

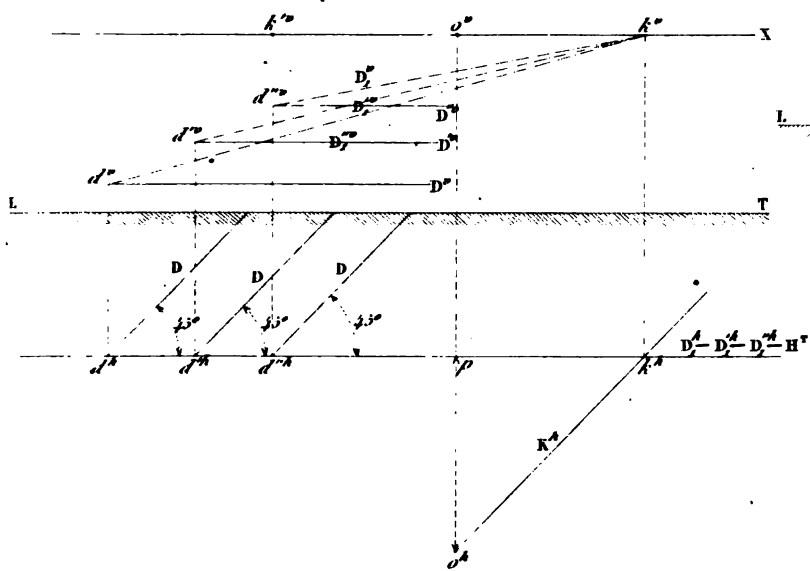


Fig. 6.

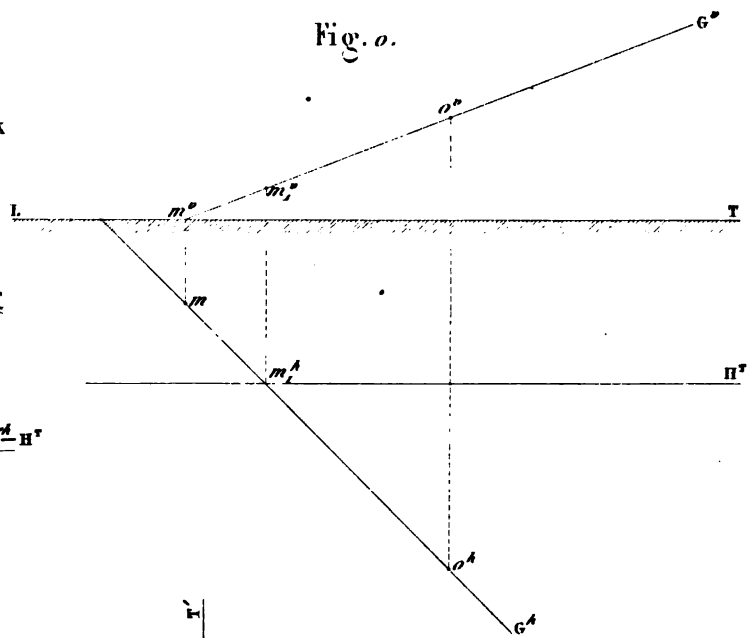


Fig. 1.

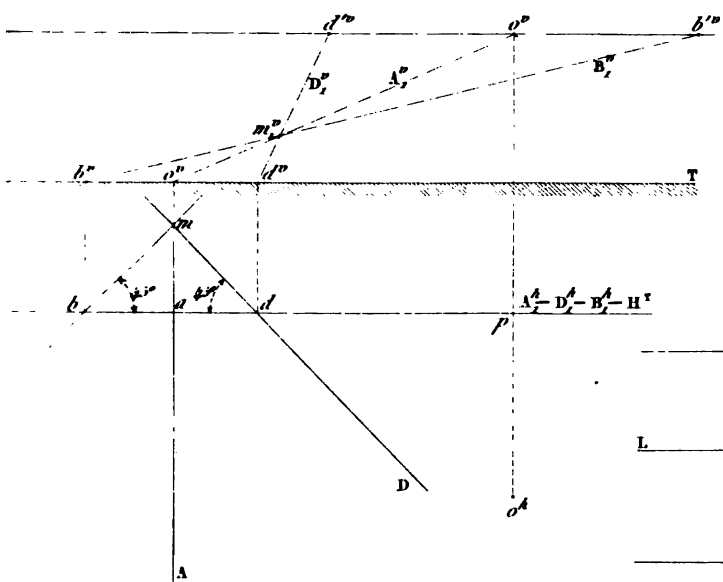


Fig. 5.

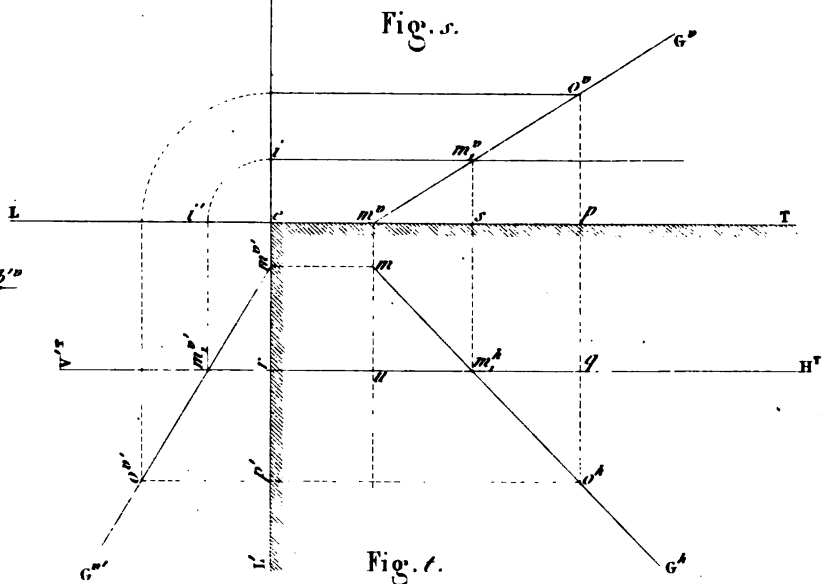
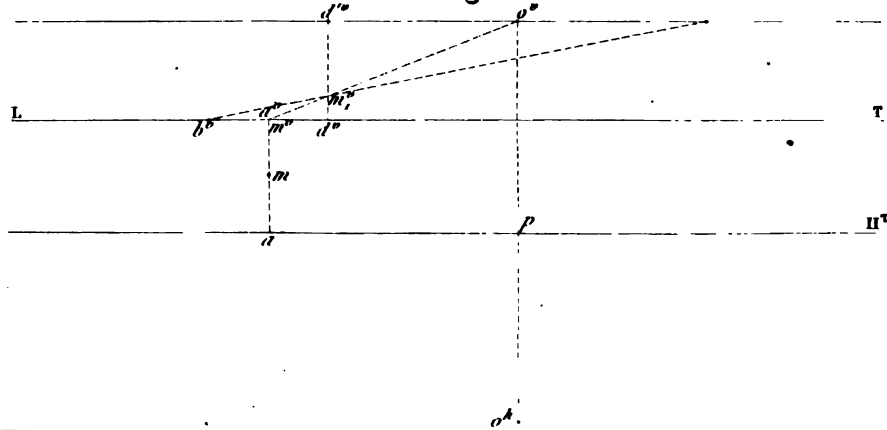


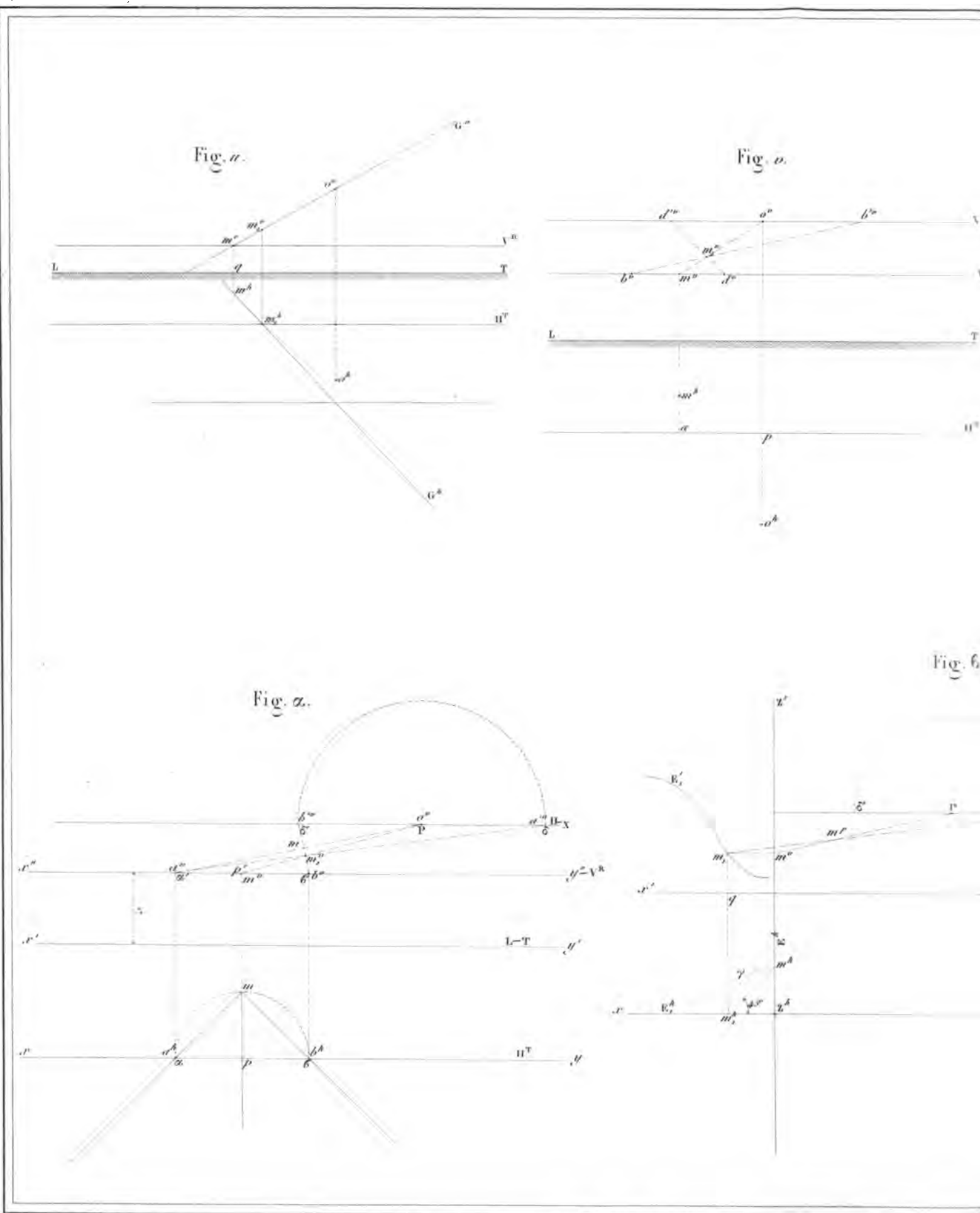
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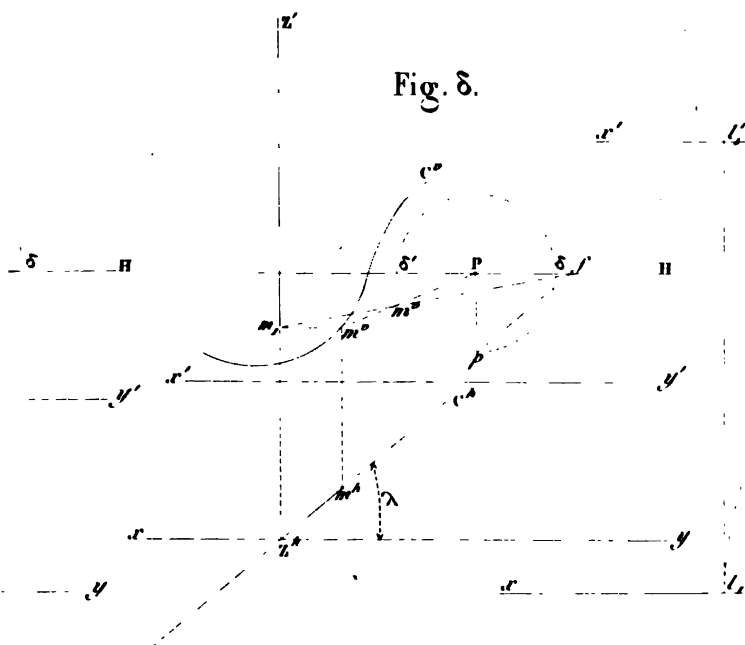
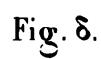
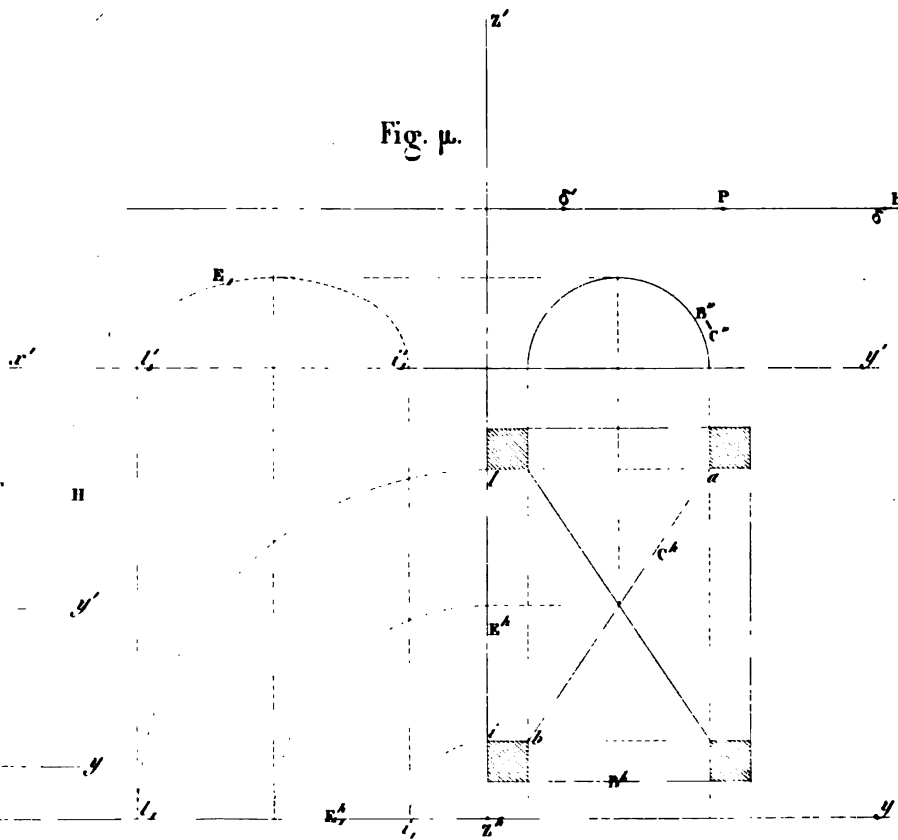
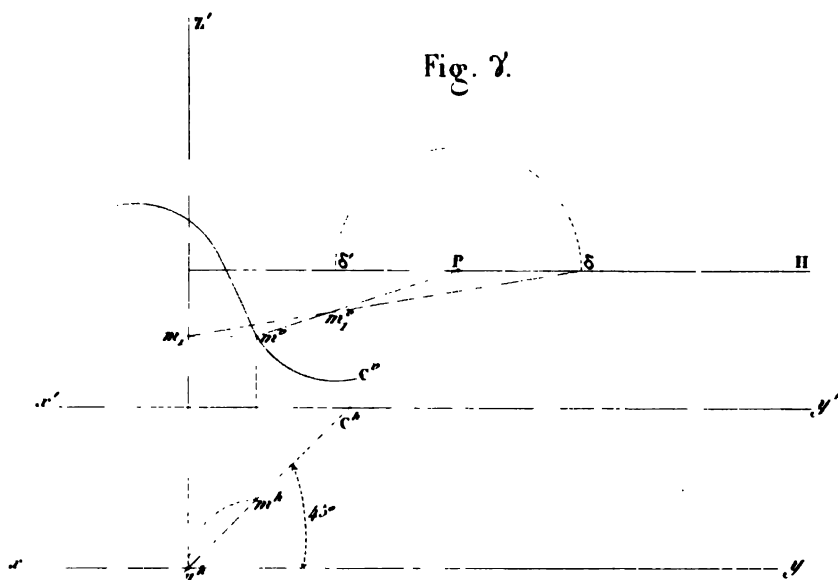
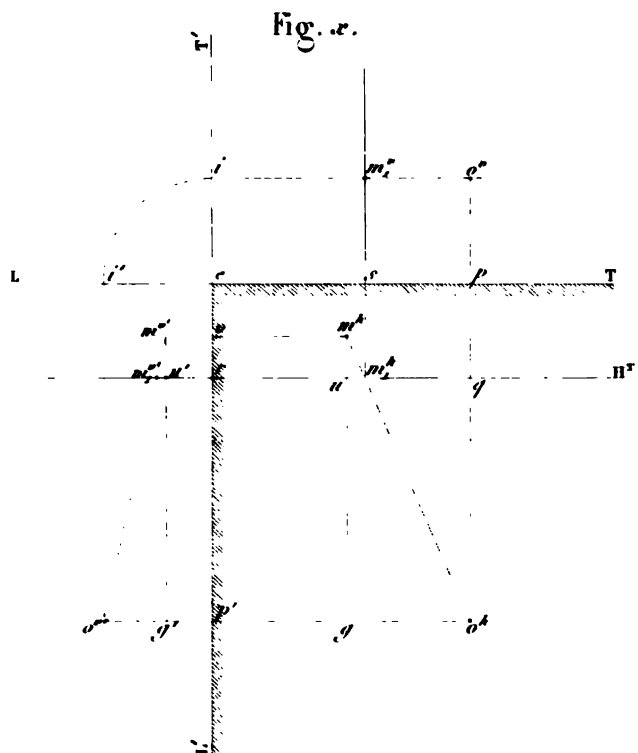






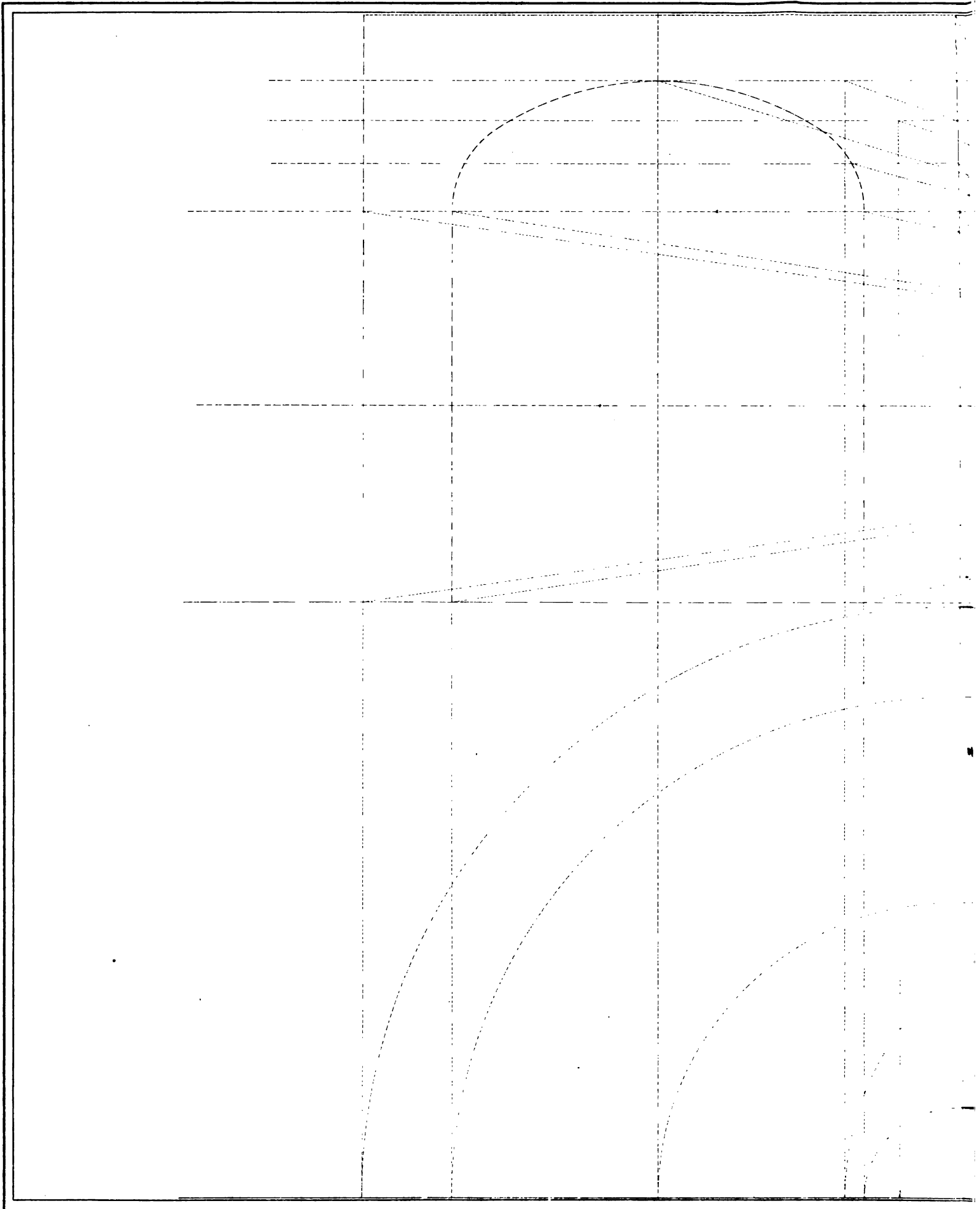


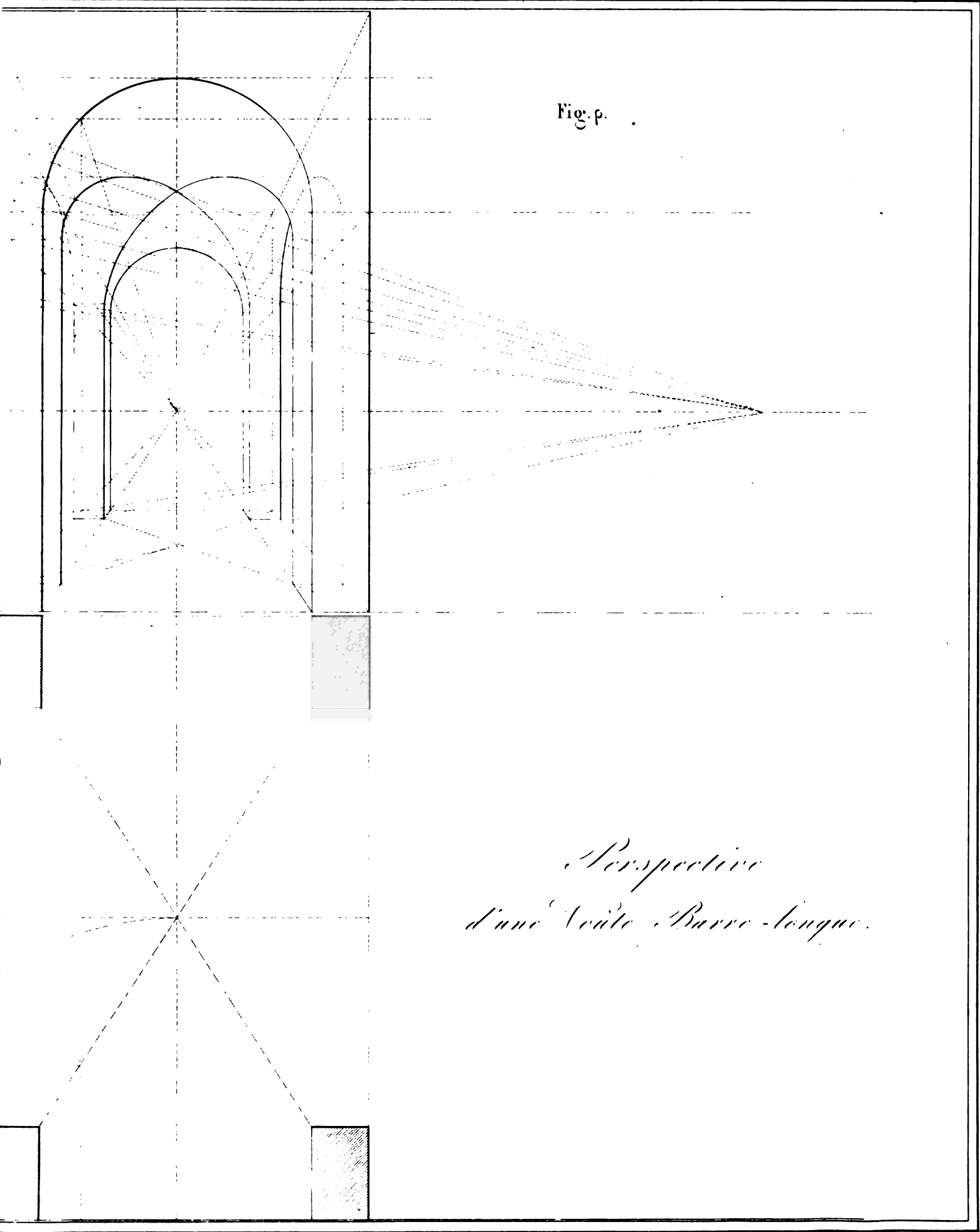


















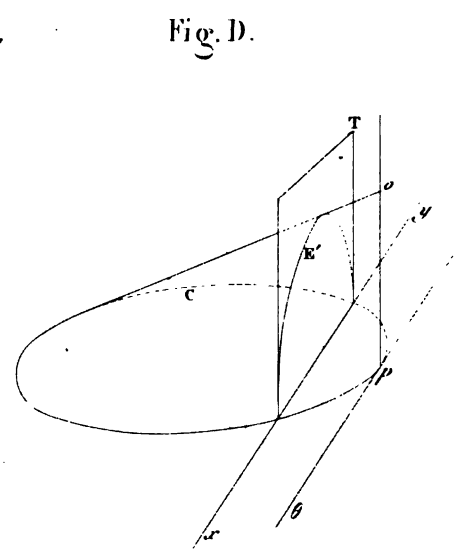
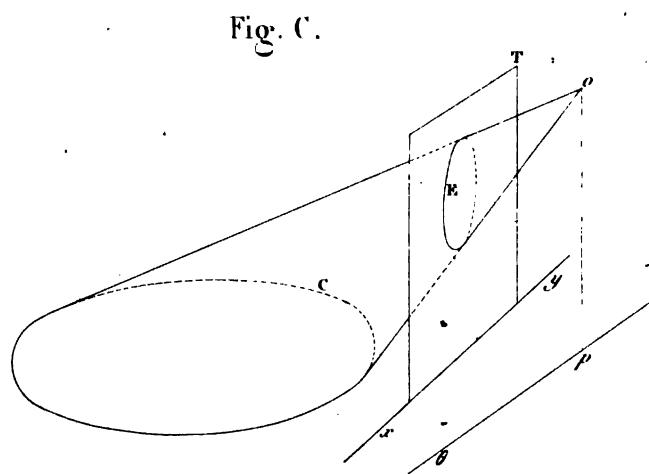
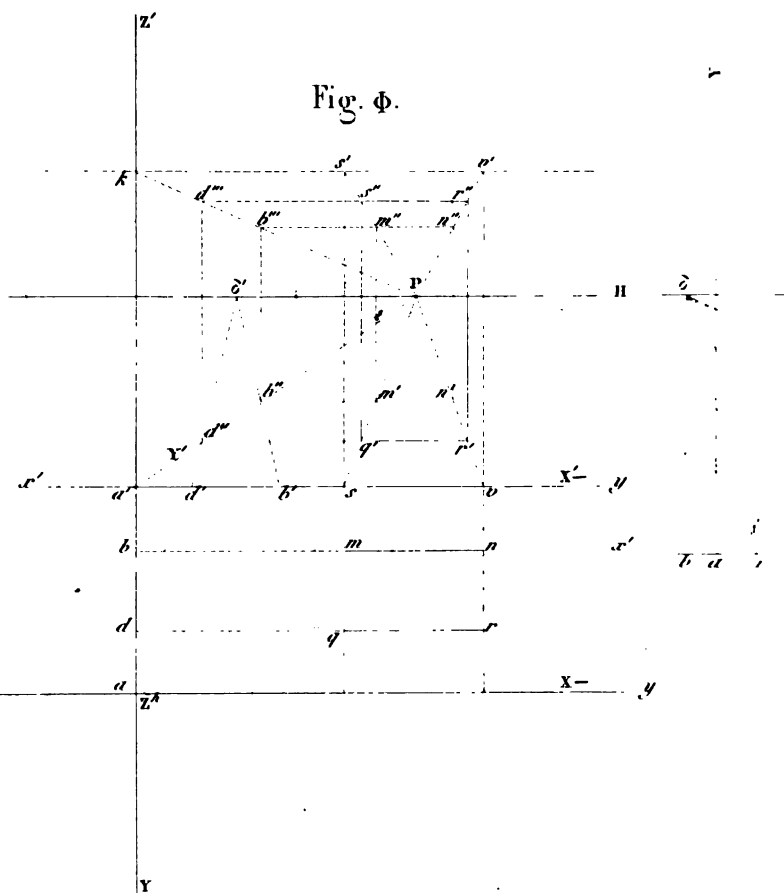
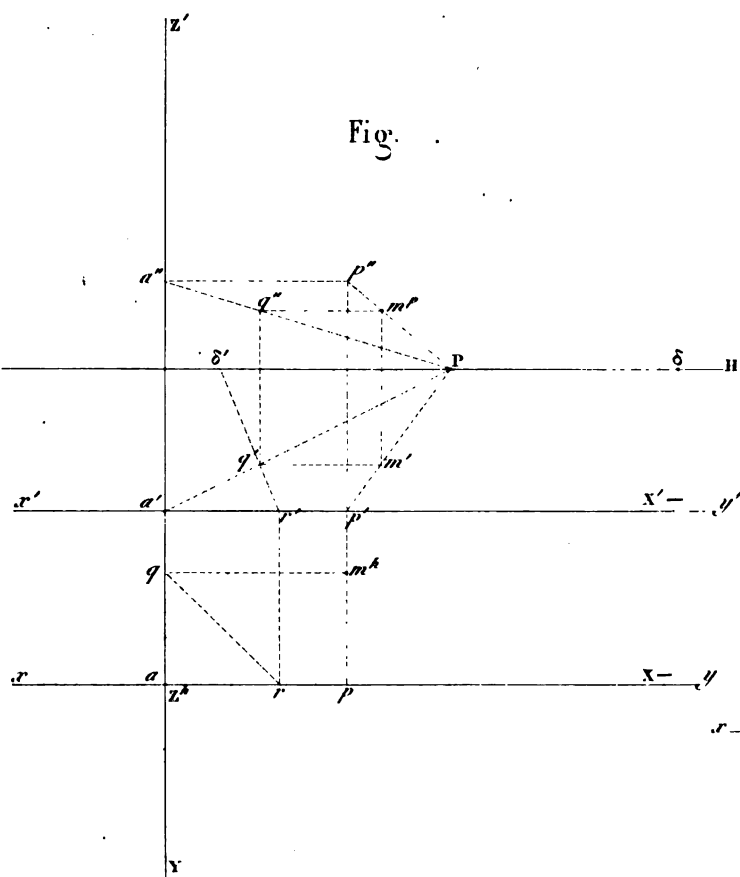


Fig. A.

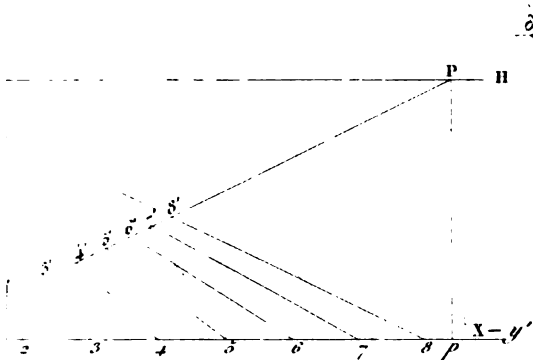


Fig. B.

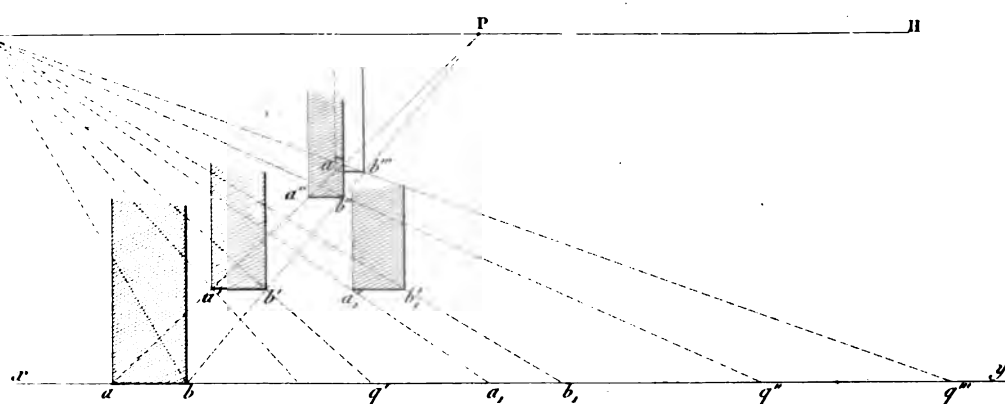


Fig. E.

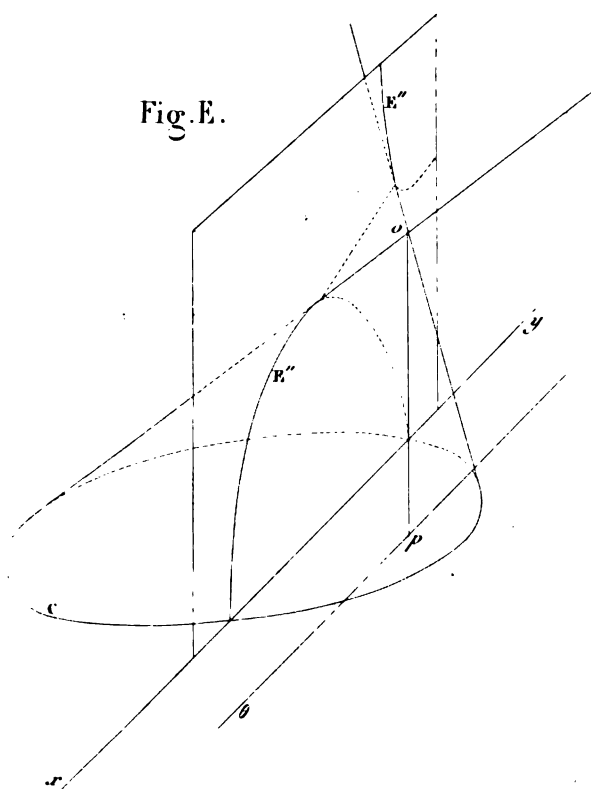
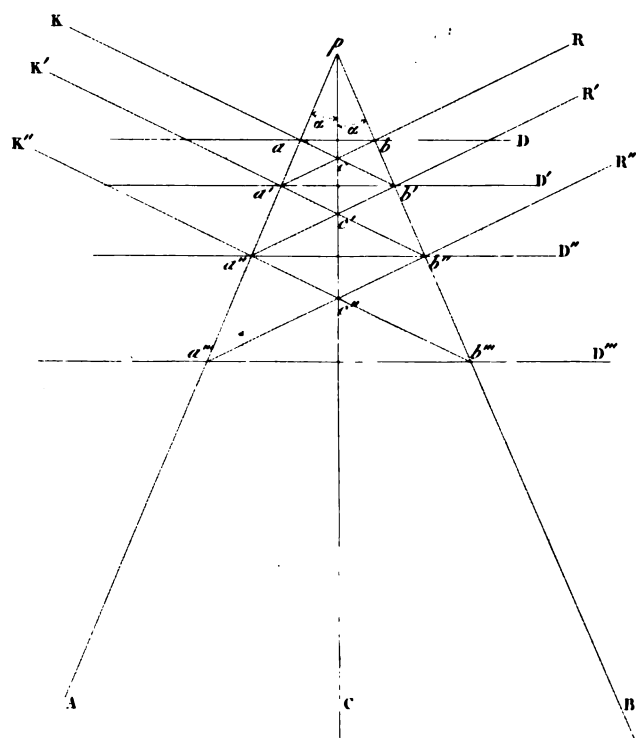


Fig. 1.



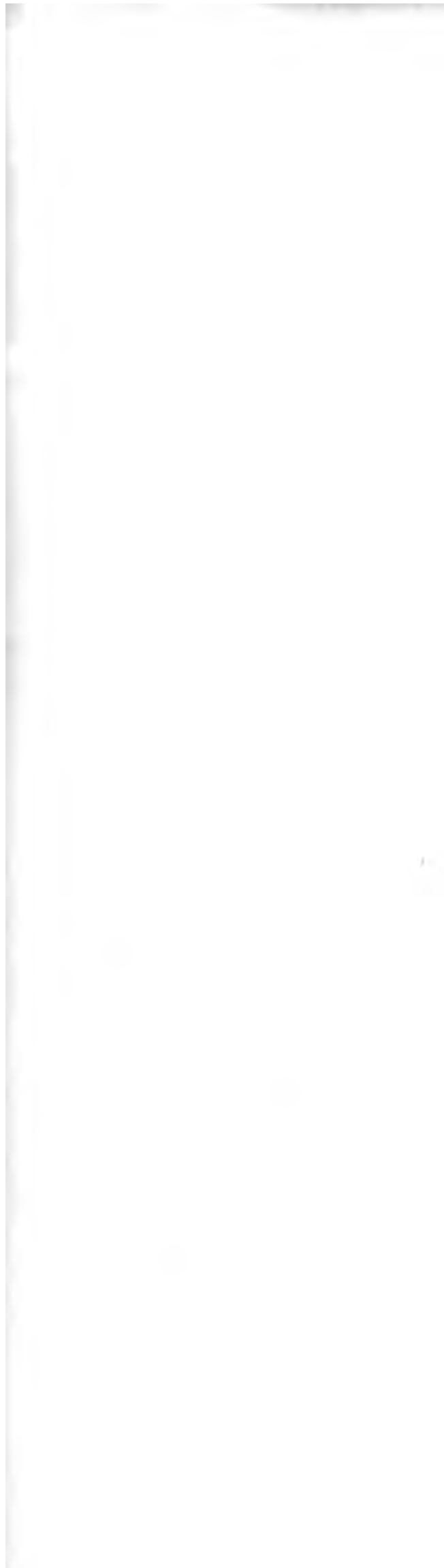




Fig. 2.

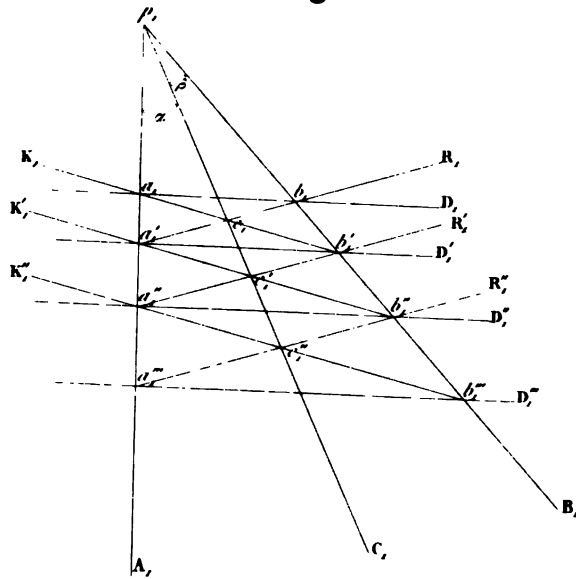


Fig. 3.

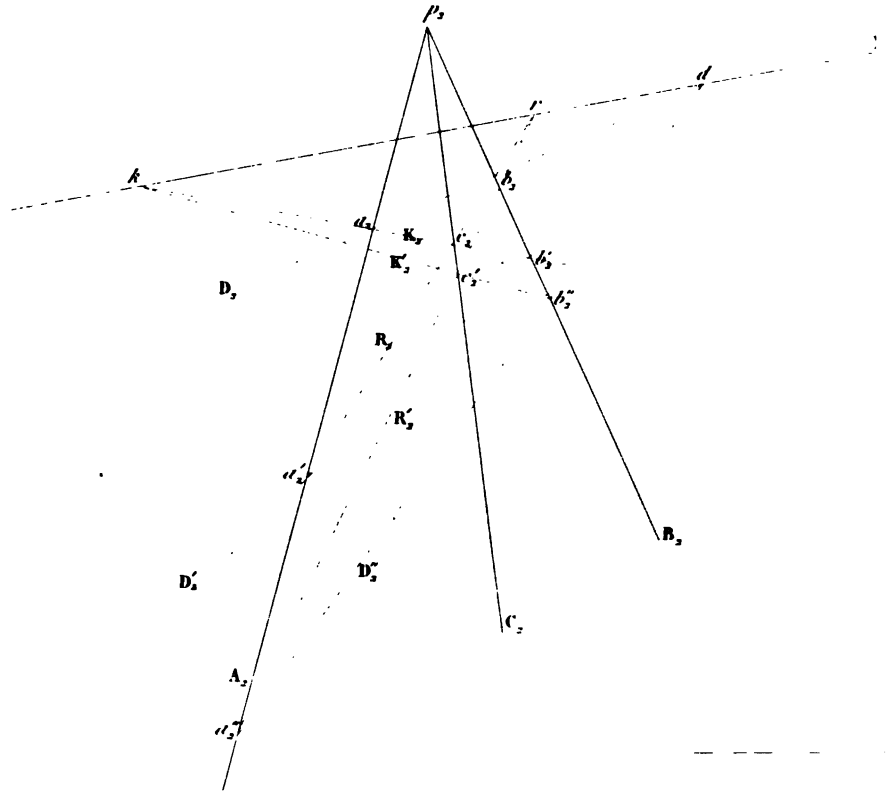


Fig. 6.

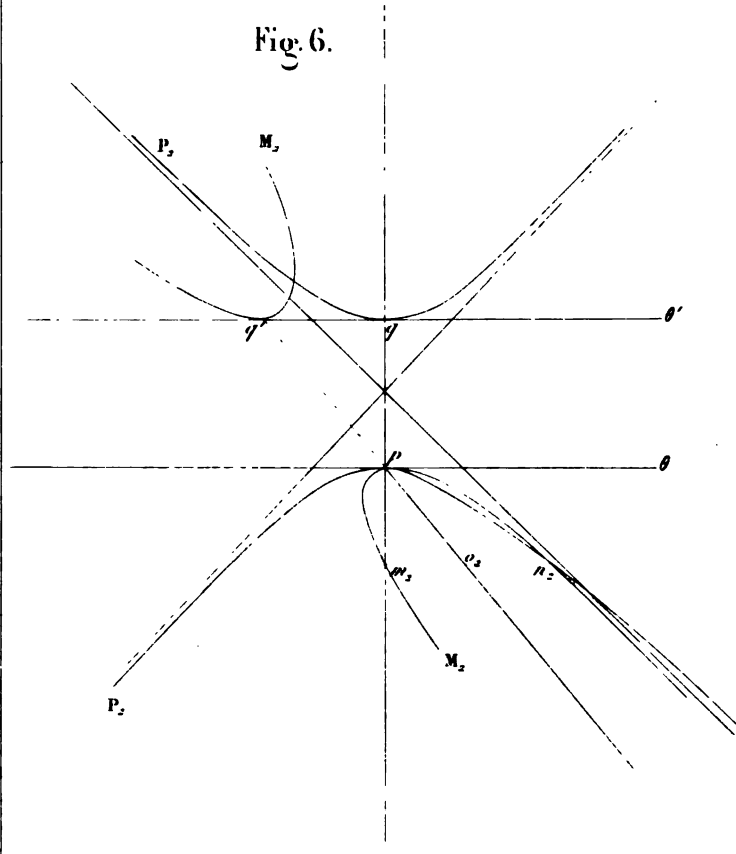


Fig. 7.

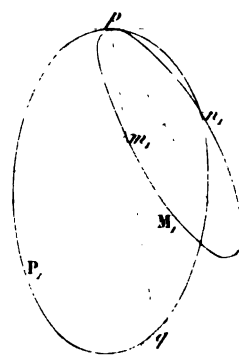


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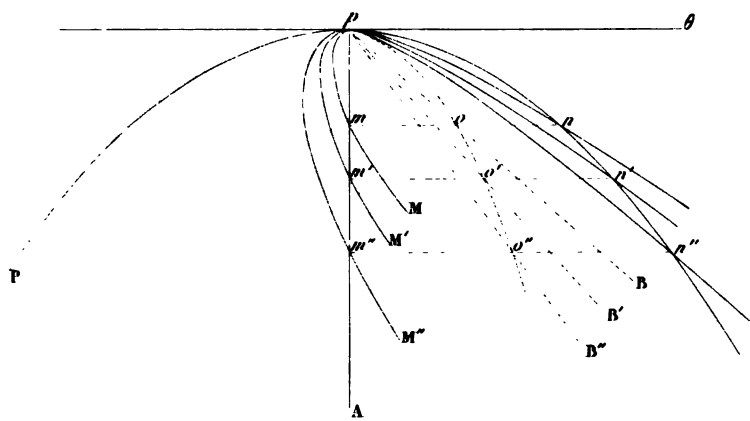


Fig. 5.

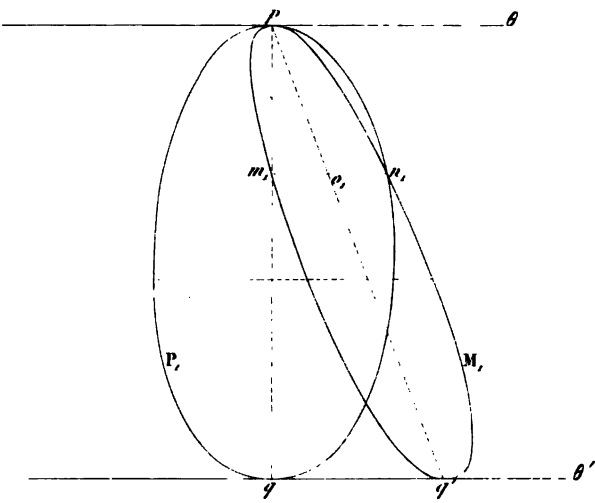


Fig. 8.

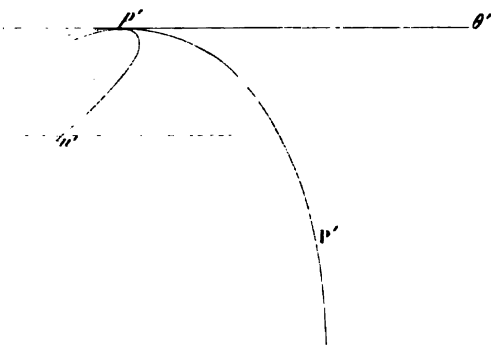


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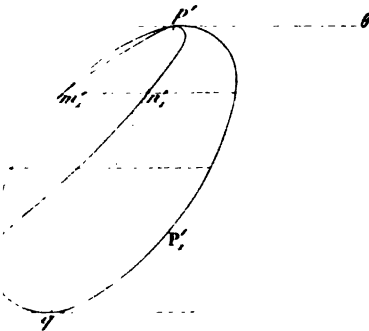


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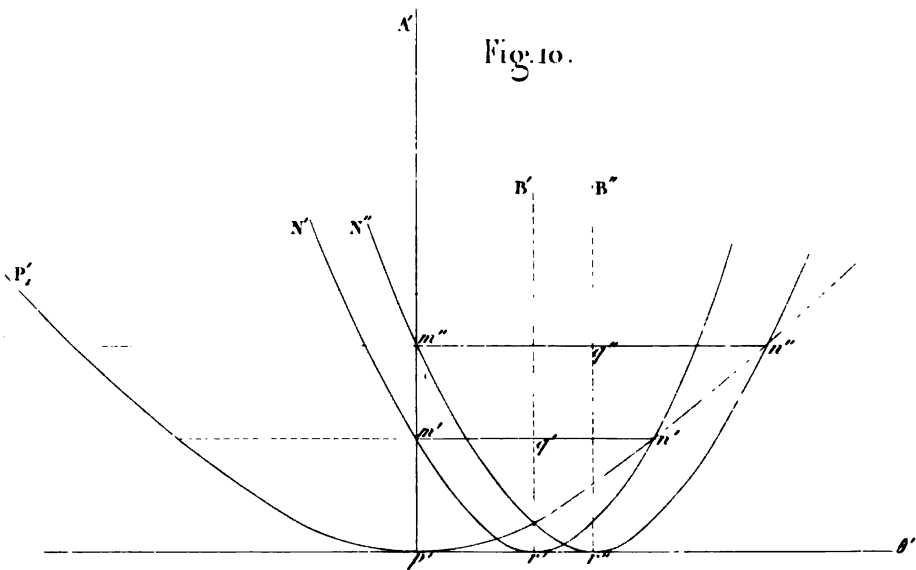










Fig. 3.

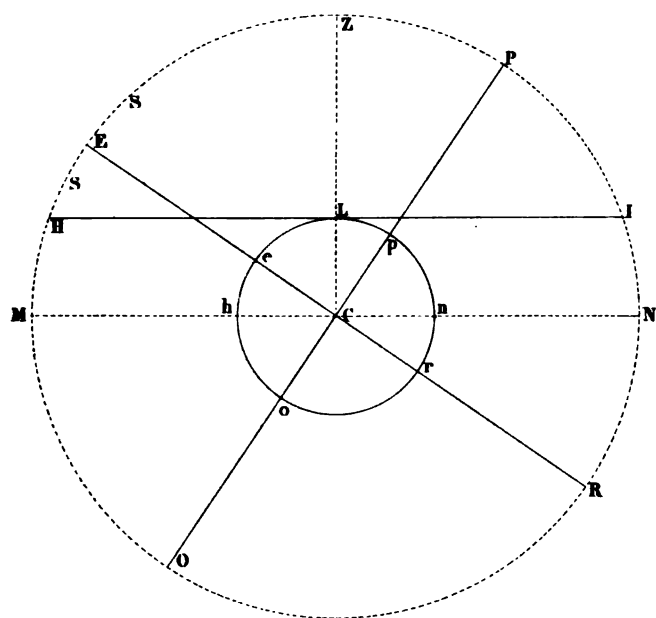


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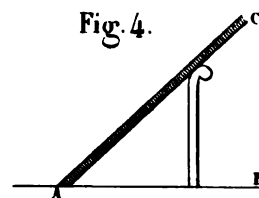


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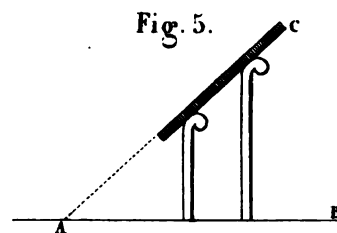


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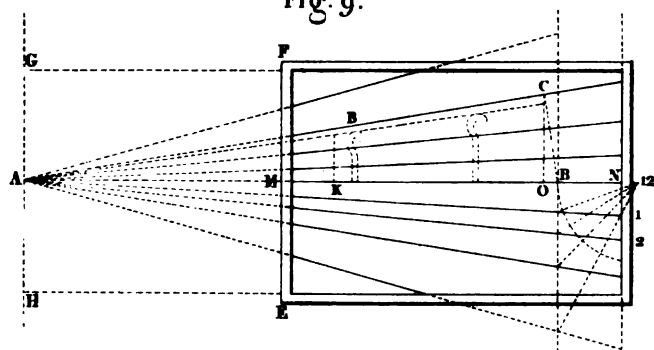


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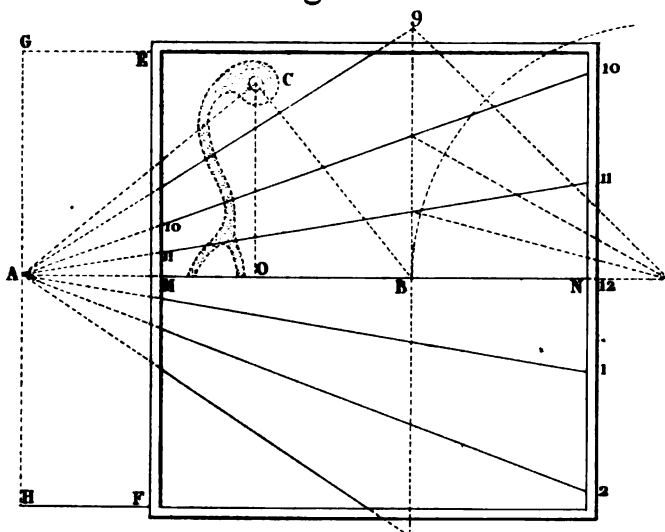


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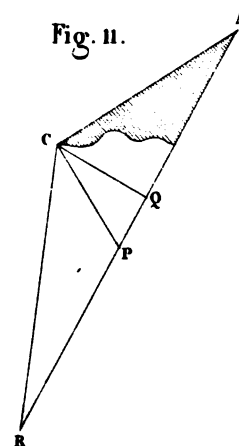


Fig. 12.

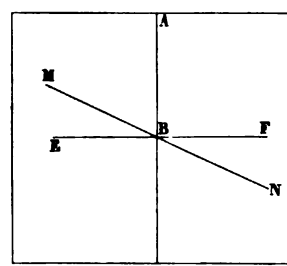






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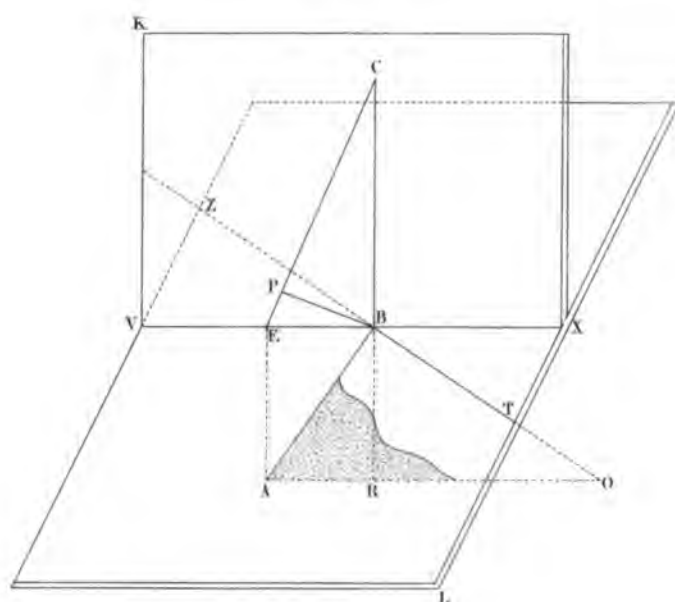


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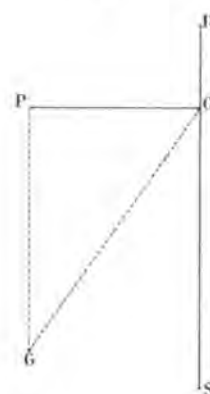


Fig. 17.

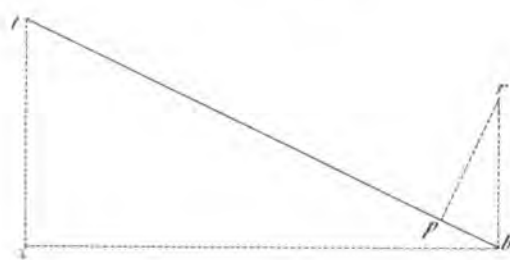


Fig. 18.

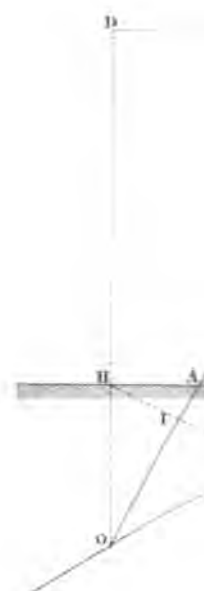
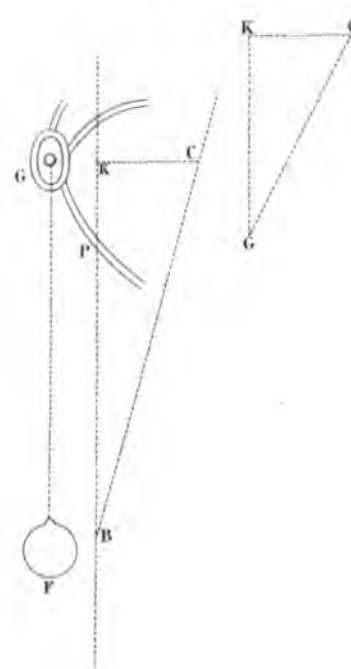


fig. 16.

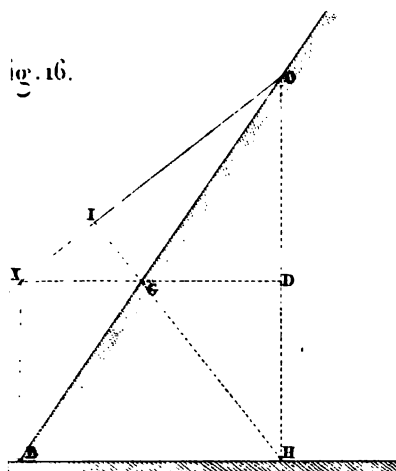


fig. 20.

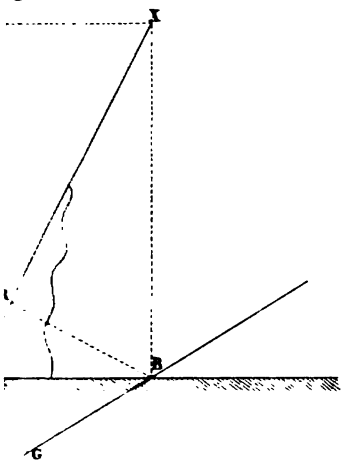


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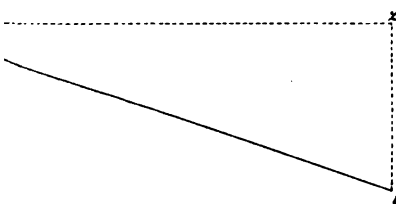


Fig. 15.  
Plan vertical.

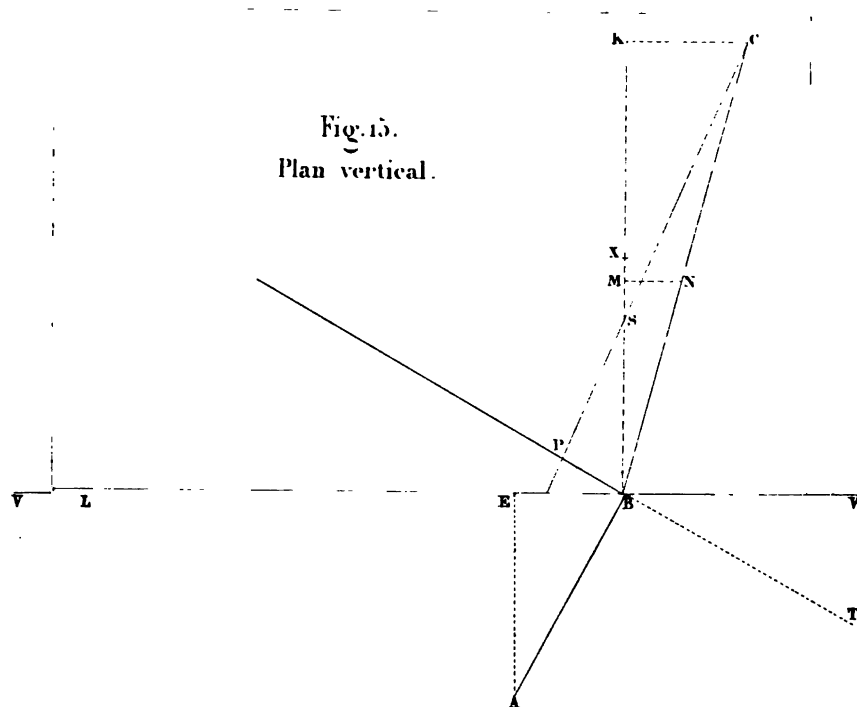


Fig. 19.  
Plan vertical.

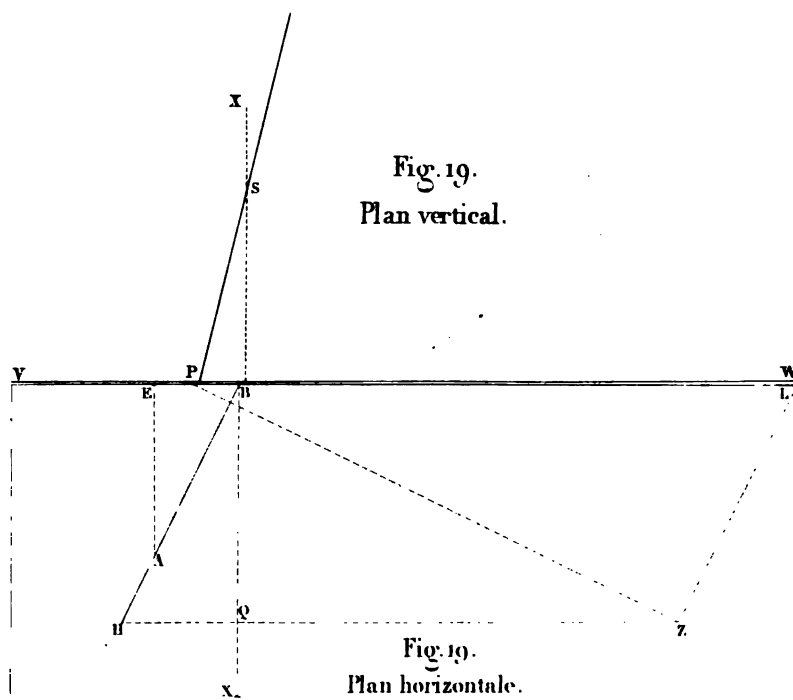


Fig. 19.  
Plan horizontale.







Fig. 22.  
Plan horizontal.

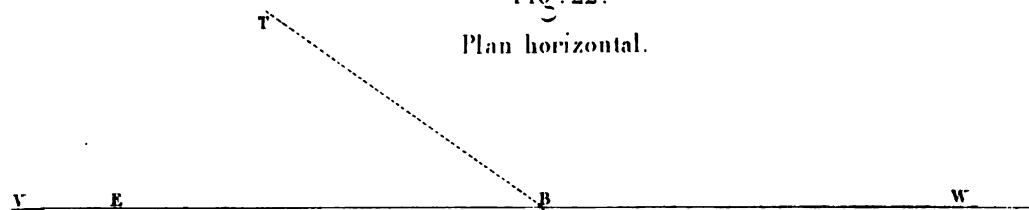


Fig. 22.  
Plan vertical.

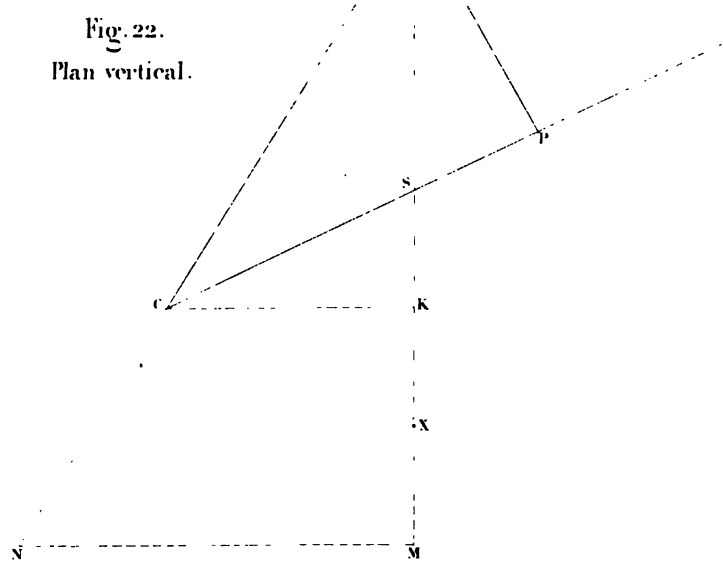


Fig. 23.  
Plan horizontal.

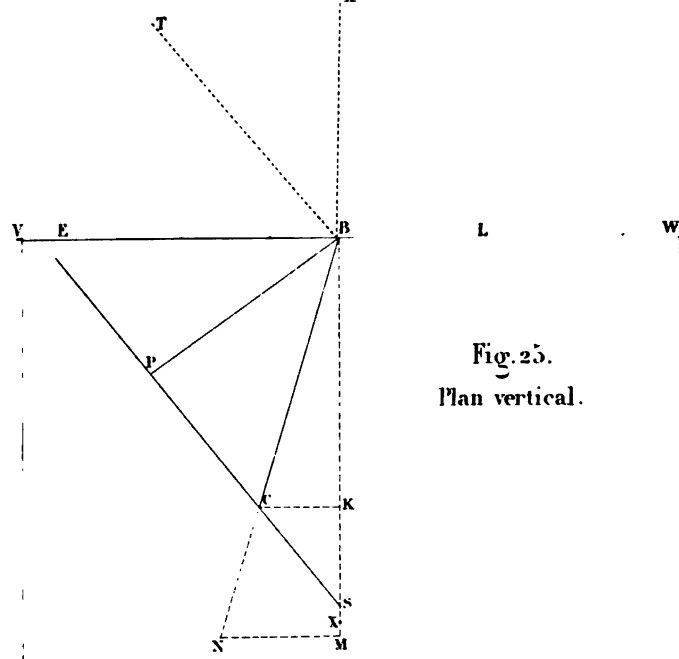


Fig. 25.  
Plan vertical.

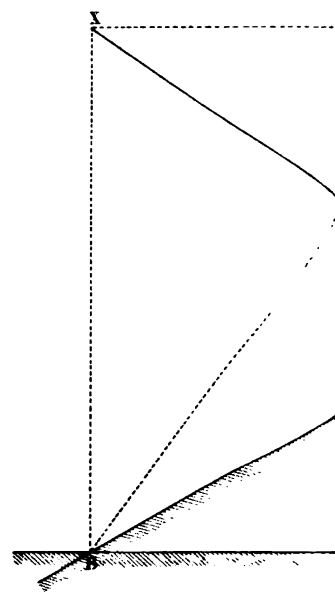
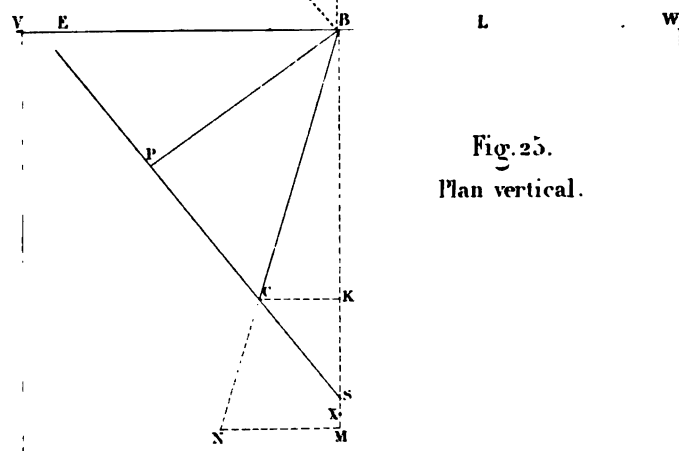


Fig. 25.

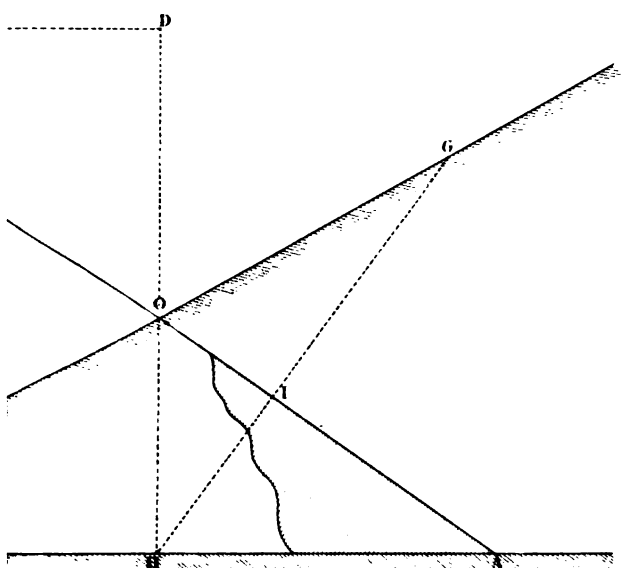


Fig. 24.

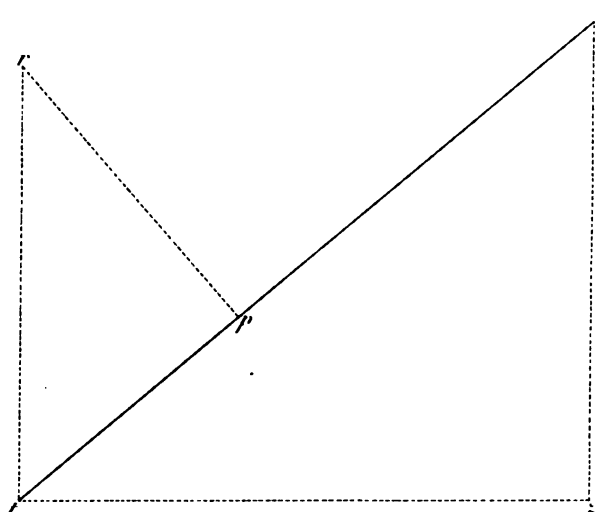


Fig. 26.

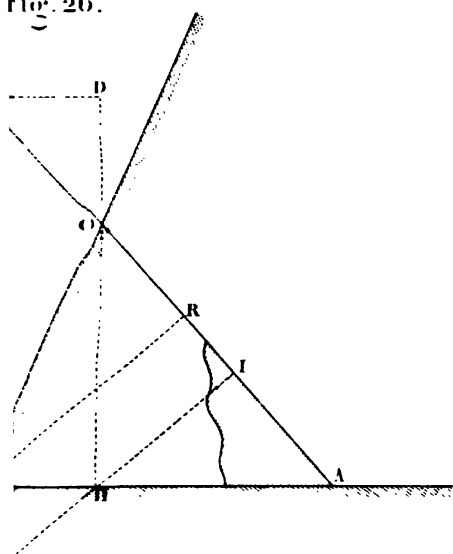


Fig. 27.

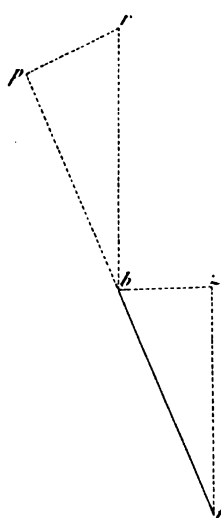






Fig. *a.*

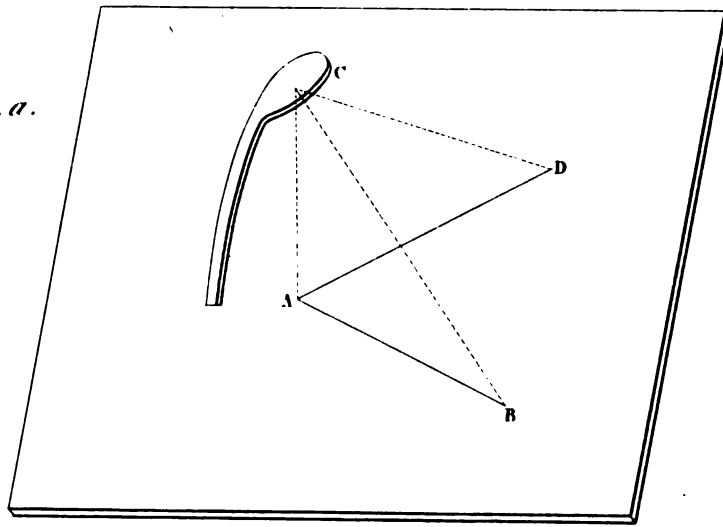


Fig. *b.*

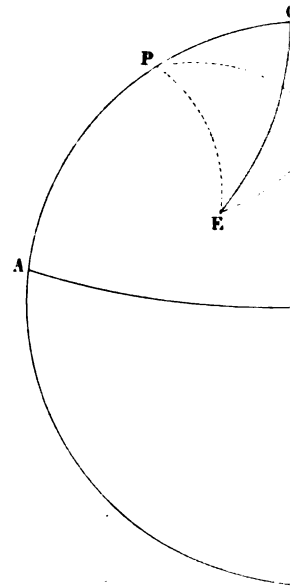


Fig. *d.*

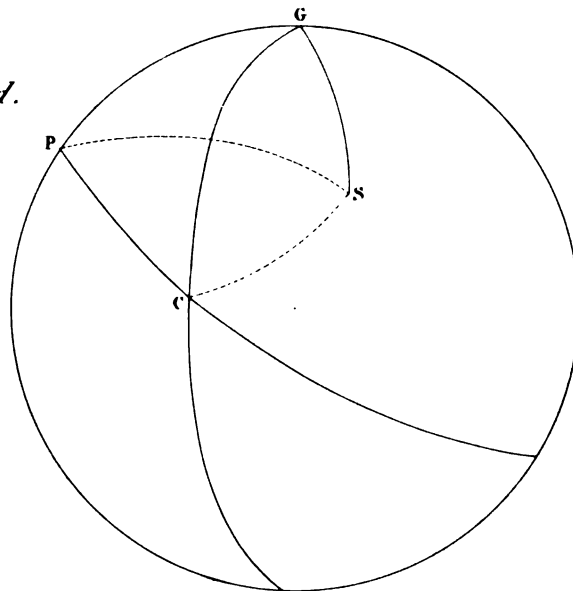


Fig. *e.*

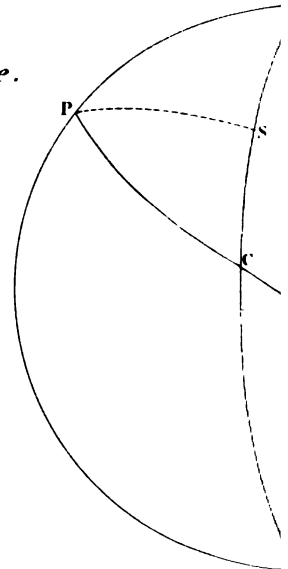


Fig. *g.*

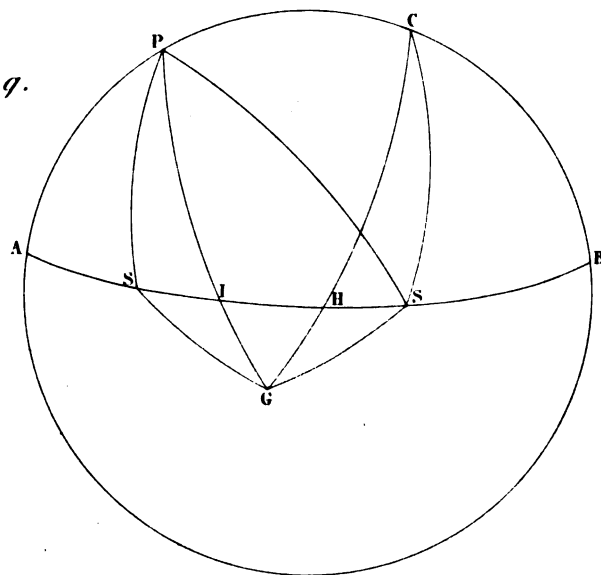


Fig. *h.*

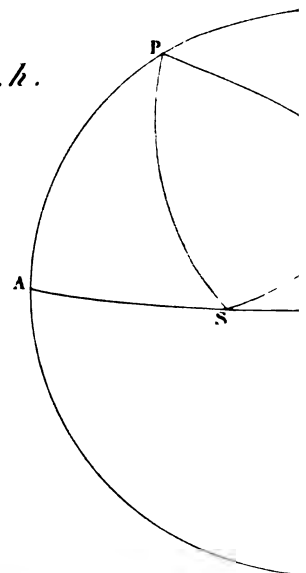


Fig. c.

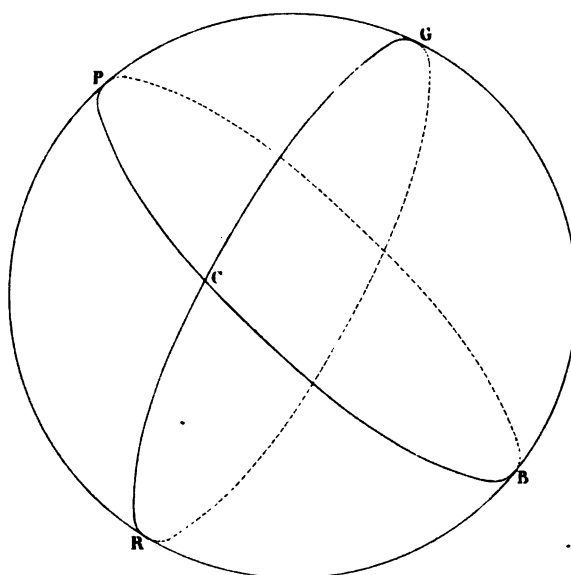


Fig. f.

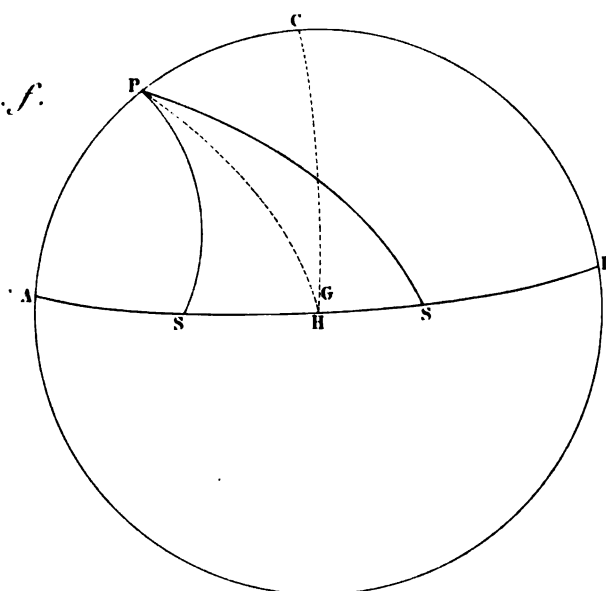


Fig. i.

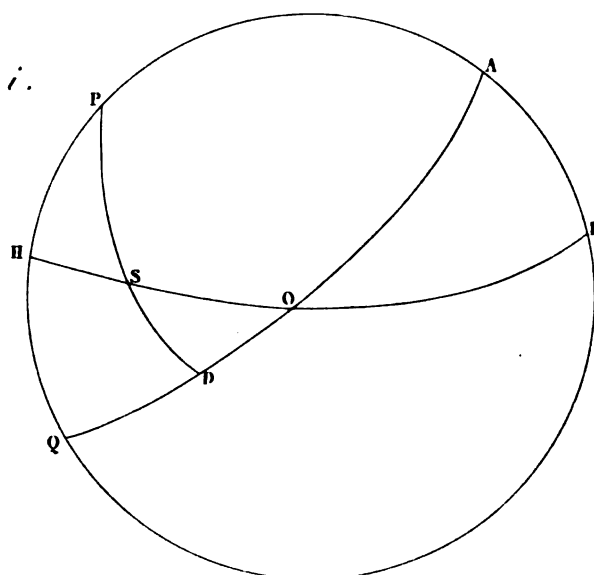








Fig. I.

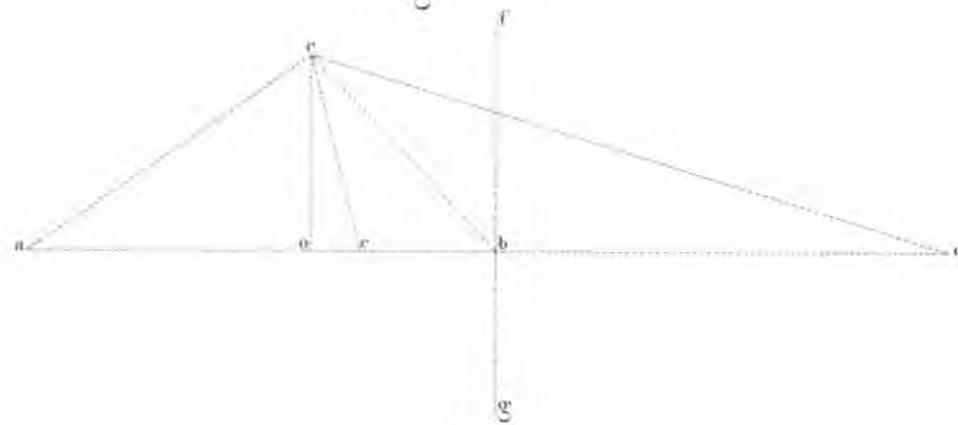


Fig. II.

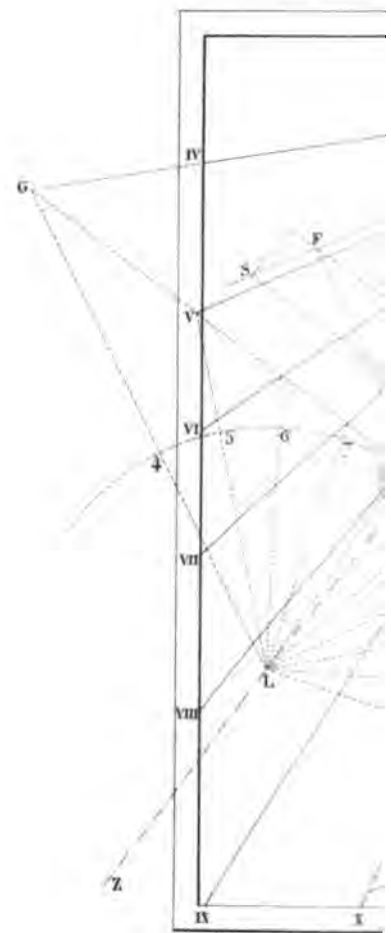
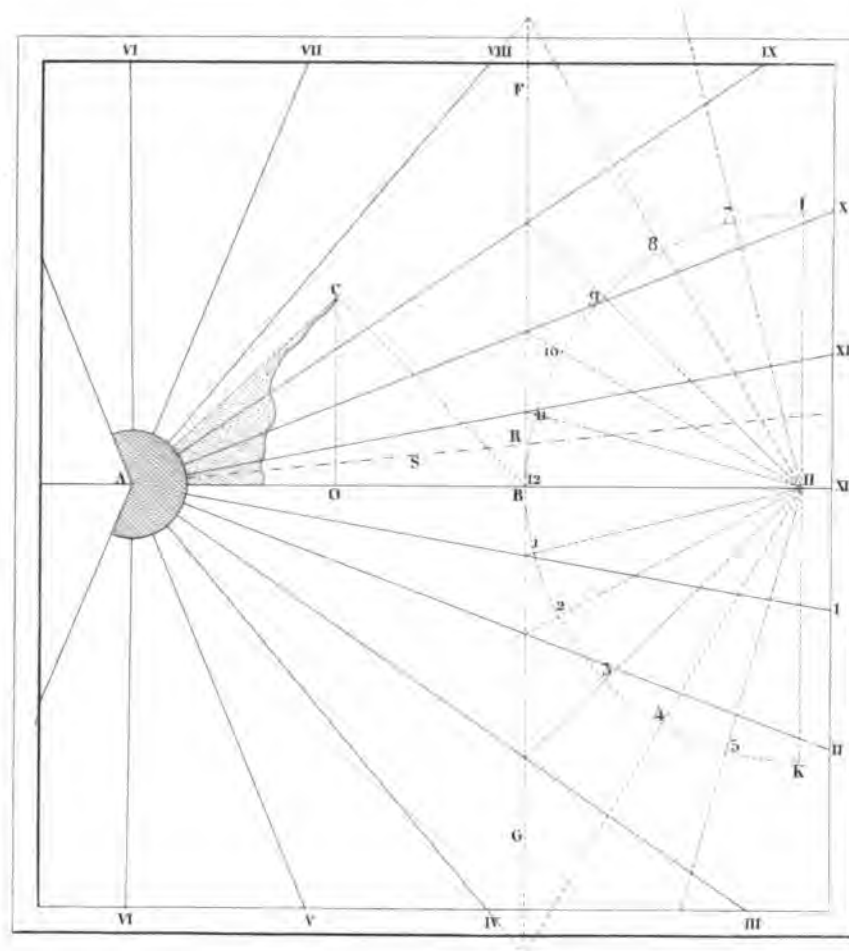


Fig. III.

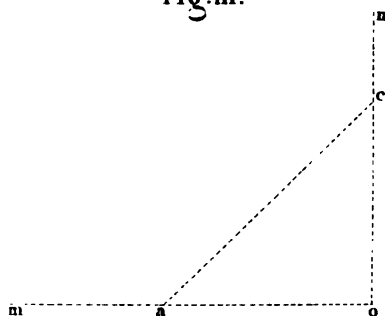


Fig. IV.

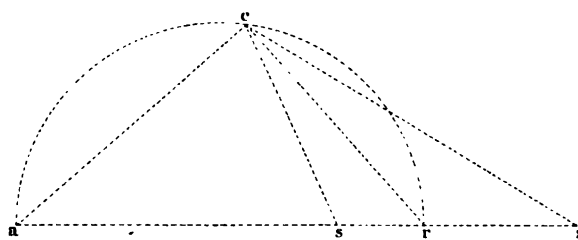


Fig. V.

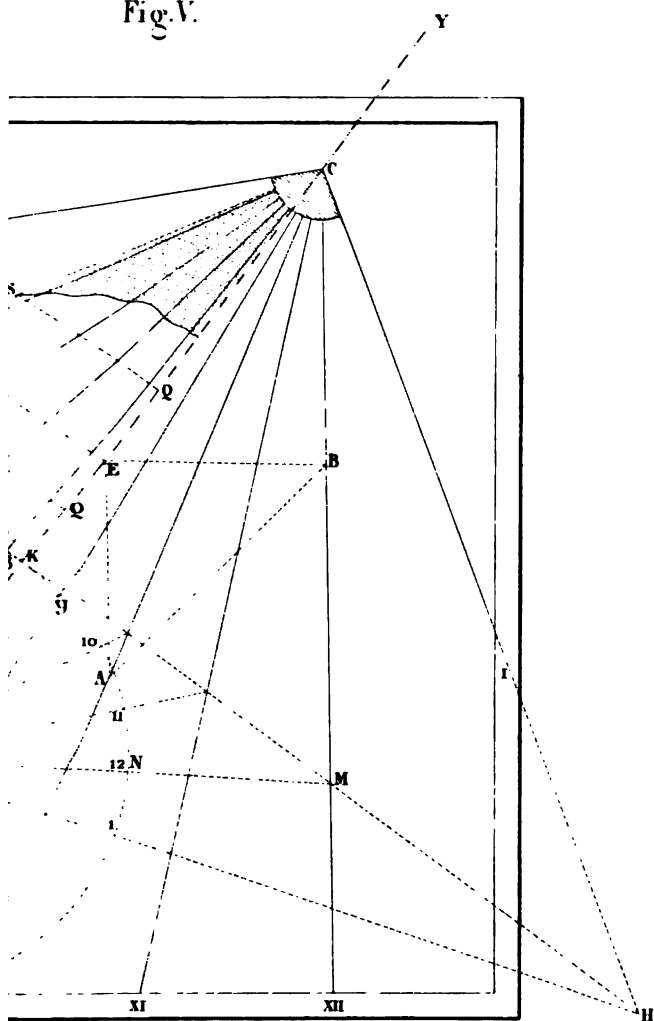


Fig.VI.

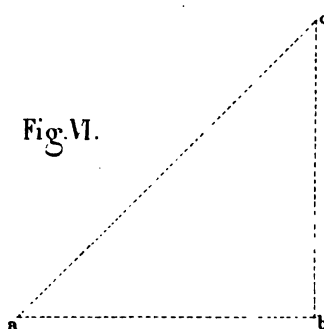


Fig. VII.

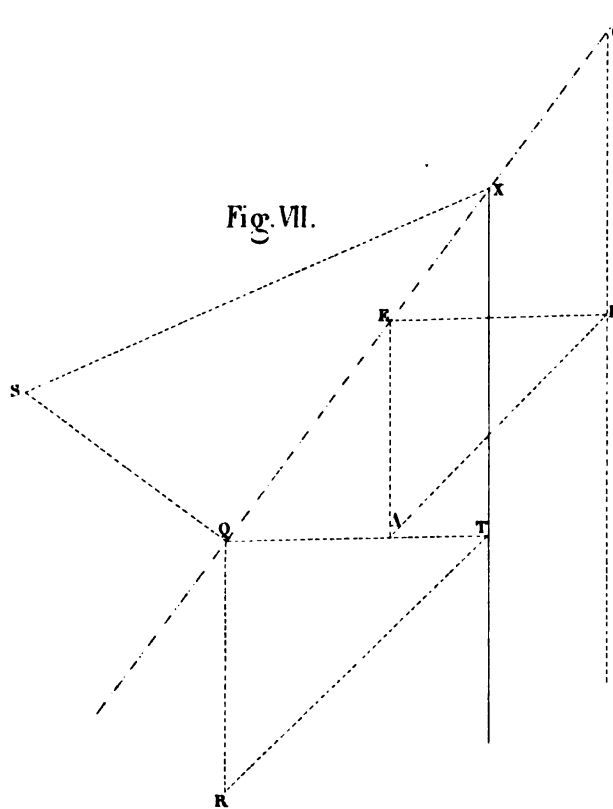






Fig. VIII.

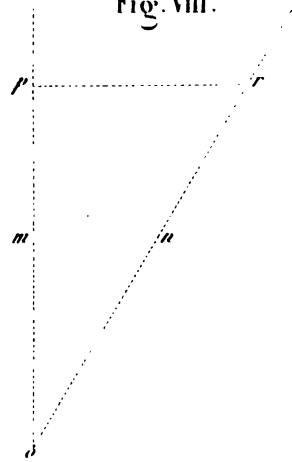


Fig. IX.

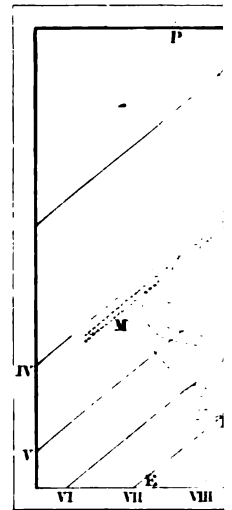
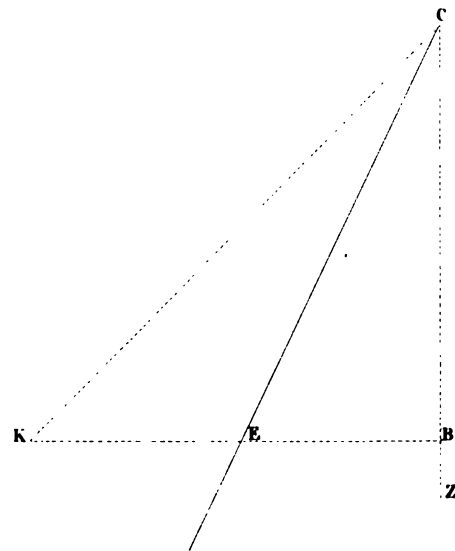


Fig. XII.

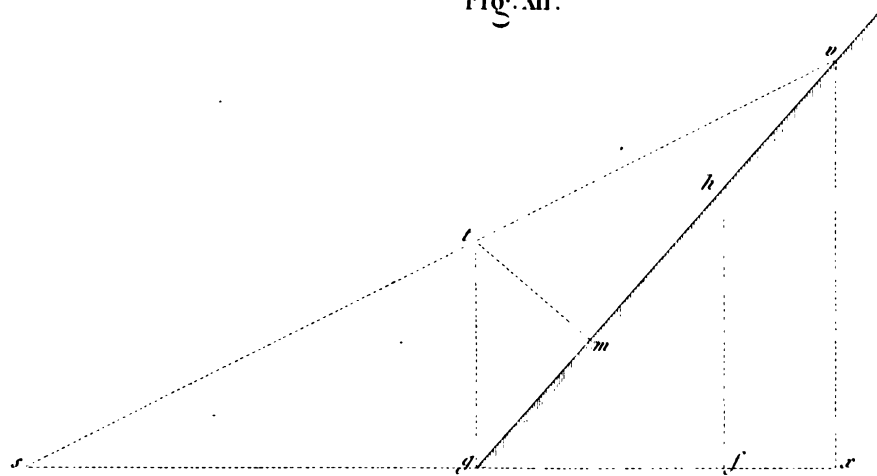


Fig. XIII.

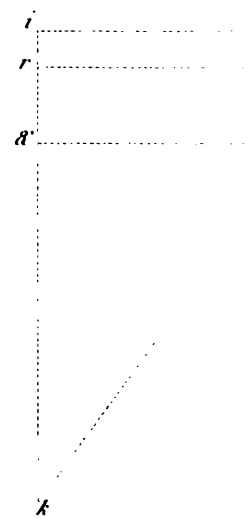


Fig. X.

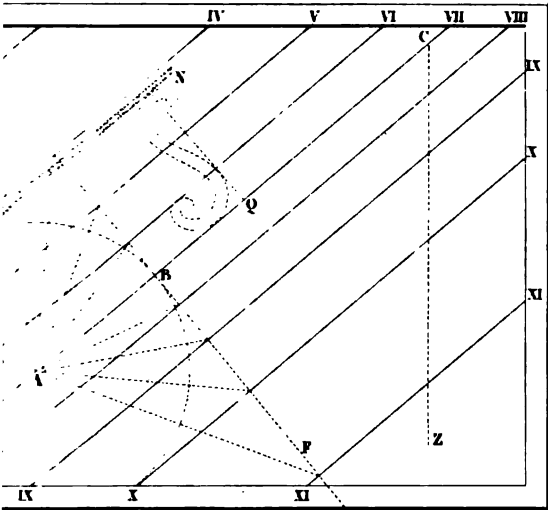


Fig. XI.

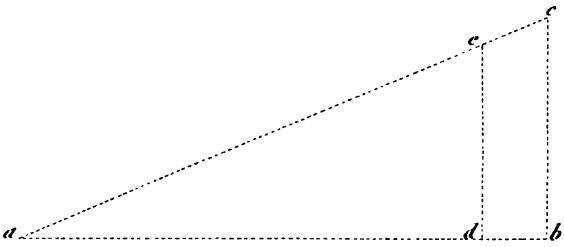


Fig. XIV.

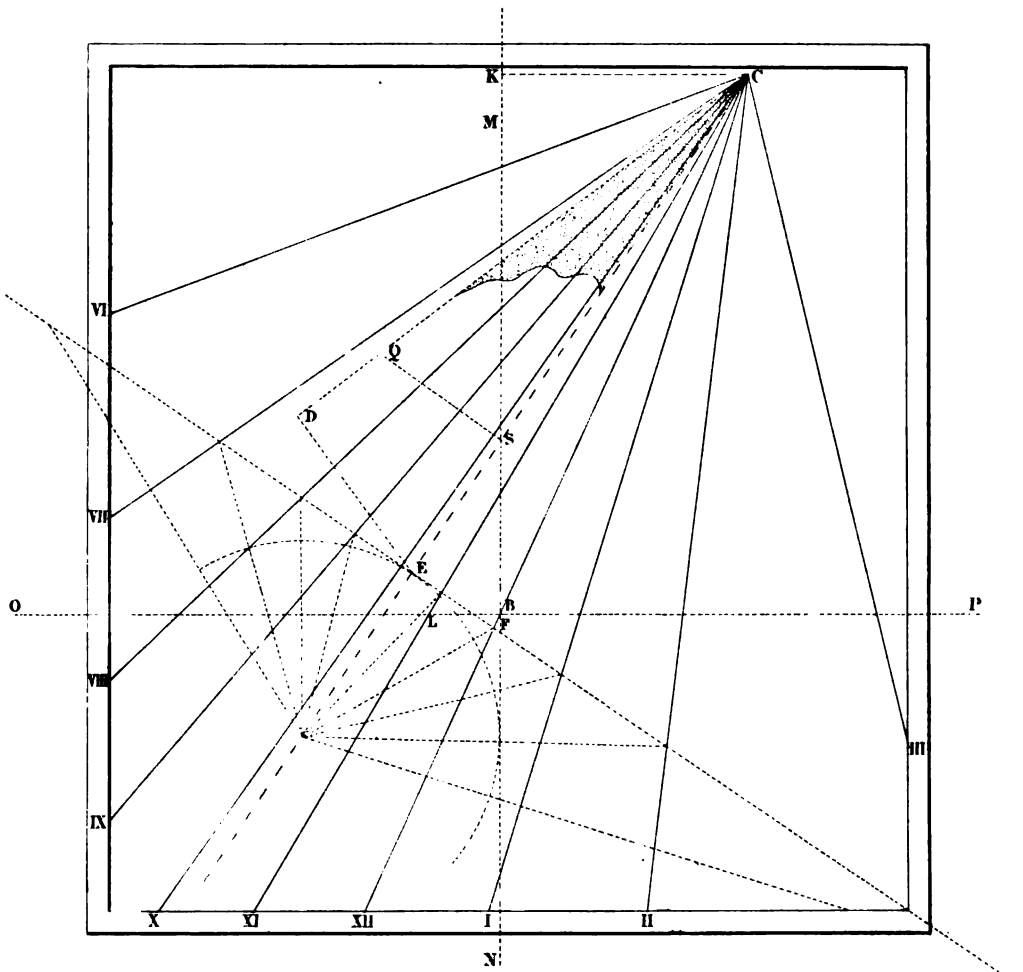








Fig. XV.



Fig. XVI.

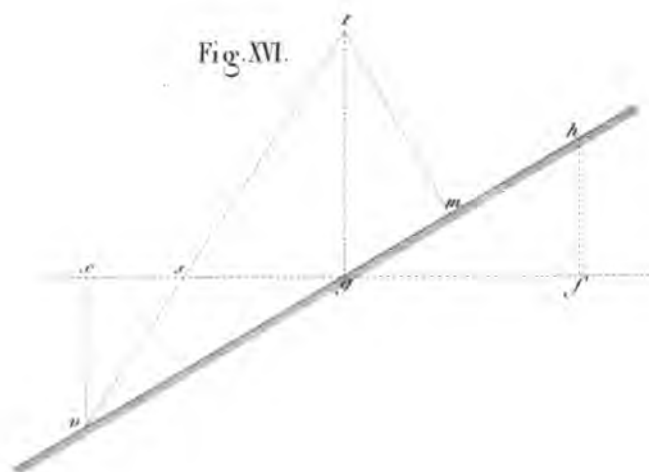


Fig. XIX.

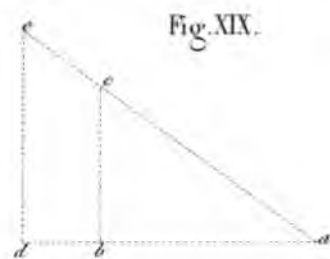


Fig. XX.

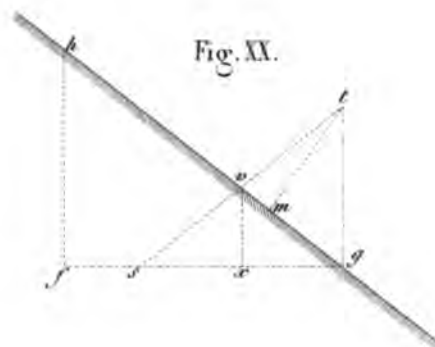


Fig. XXII.

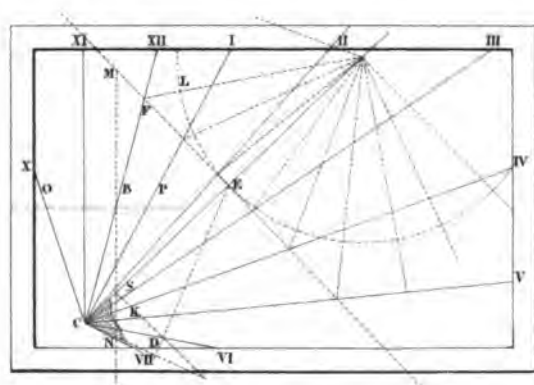


Fig. XXIII.

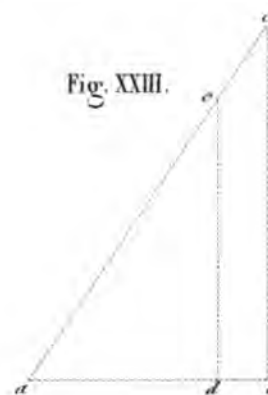


Fig. XVII.

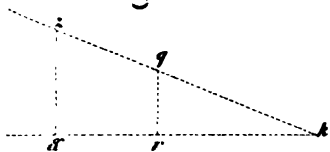


Fig. XXI.

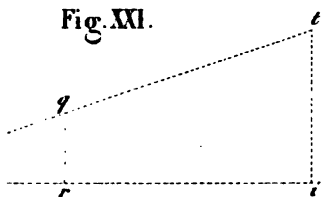


Fig. XXIV.

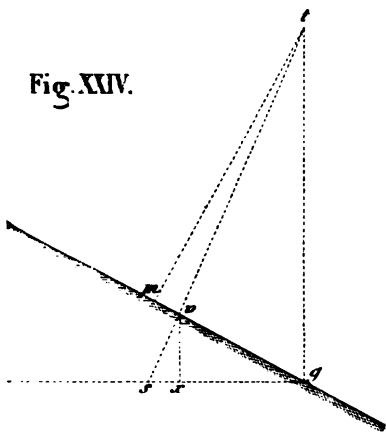


Fig. XXV.

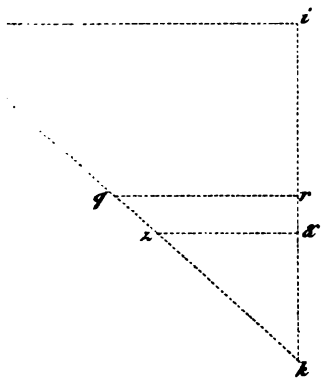


Fig. XVIII.

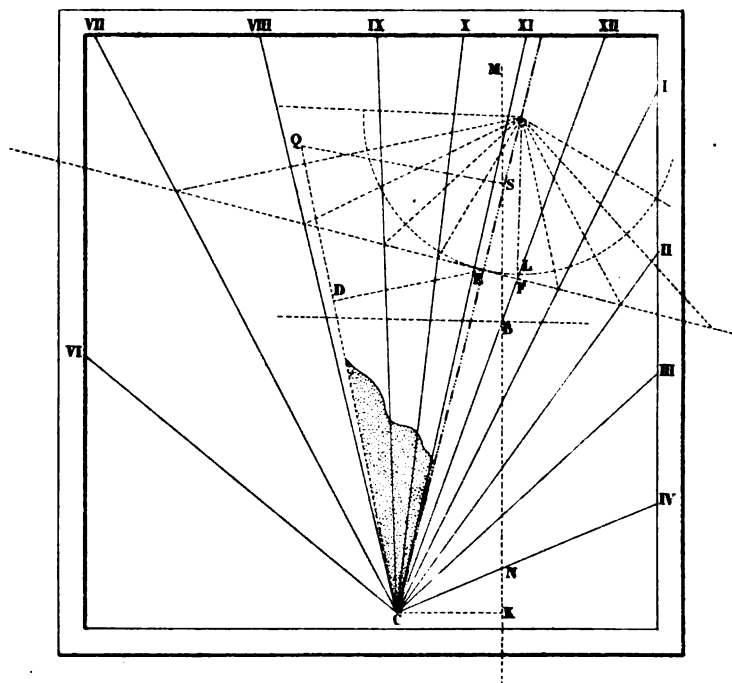
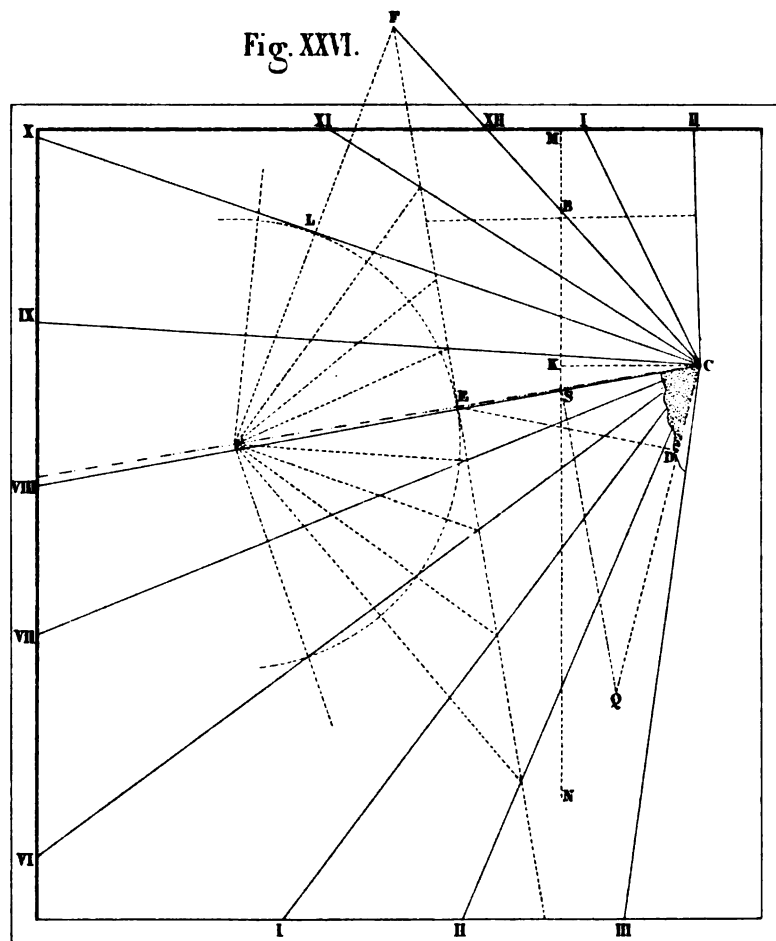
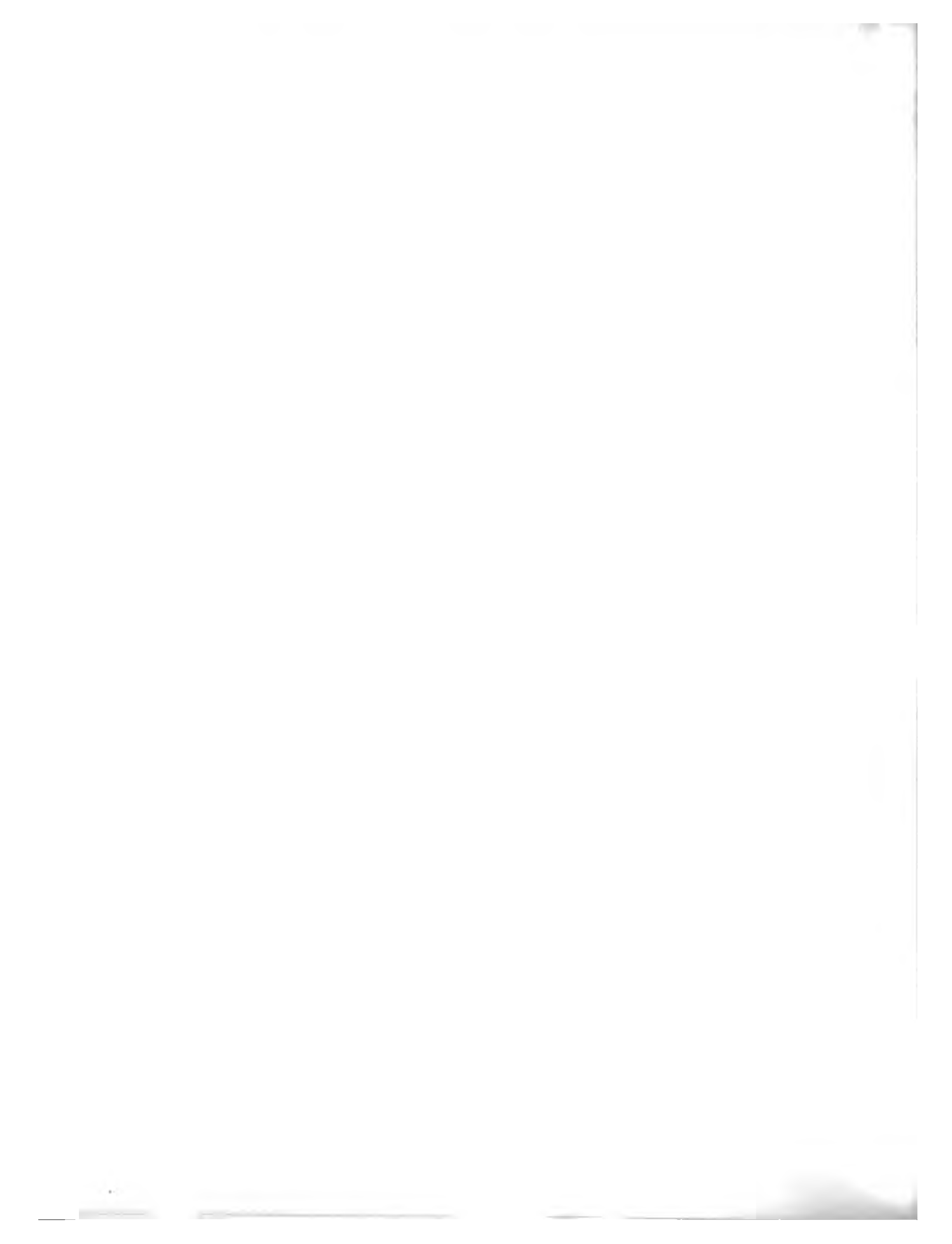


Fig. XXVI.







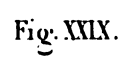
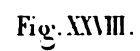
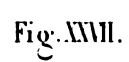


Fig. XXXI.

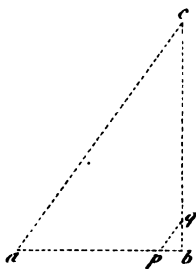


Fig. XXXIII.

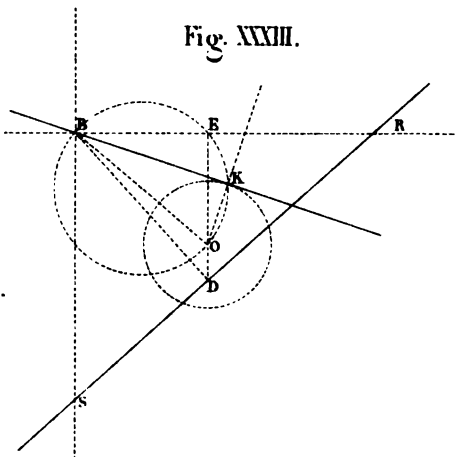


Fig. XXXII.

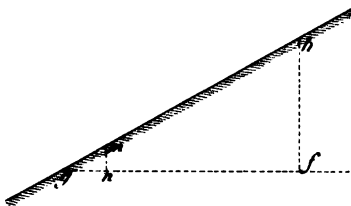


Fig. XXXIV.

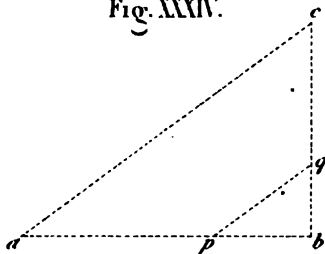


Fig. XXXVII.

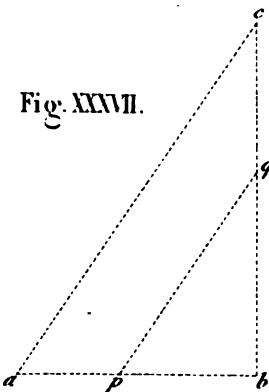


Fig. XXXVIII.

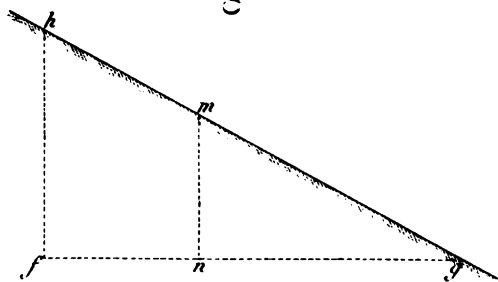








Fig. 1.

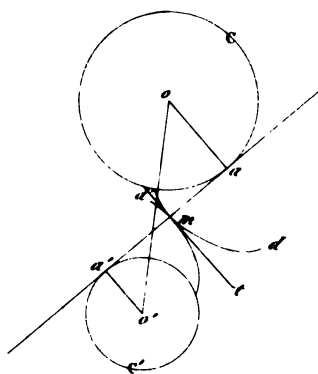


Fig. 2.

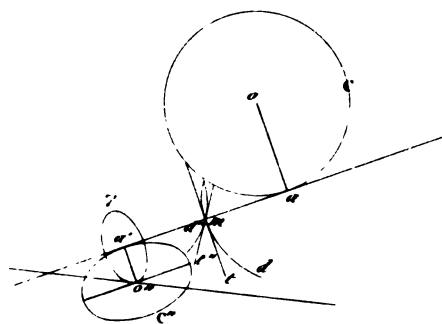


Fig.

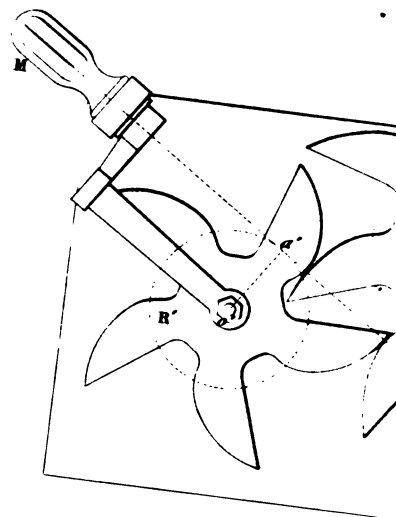


Fig. 5.

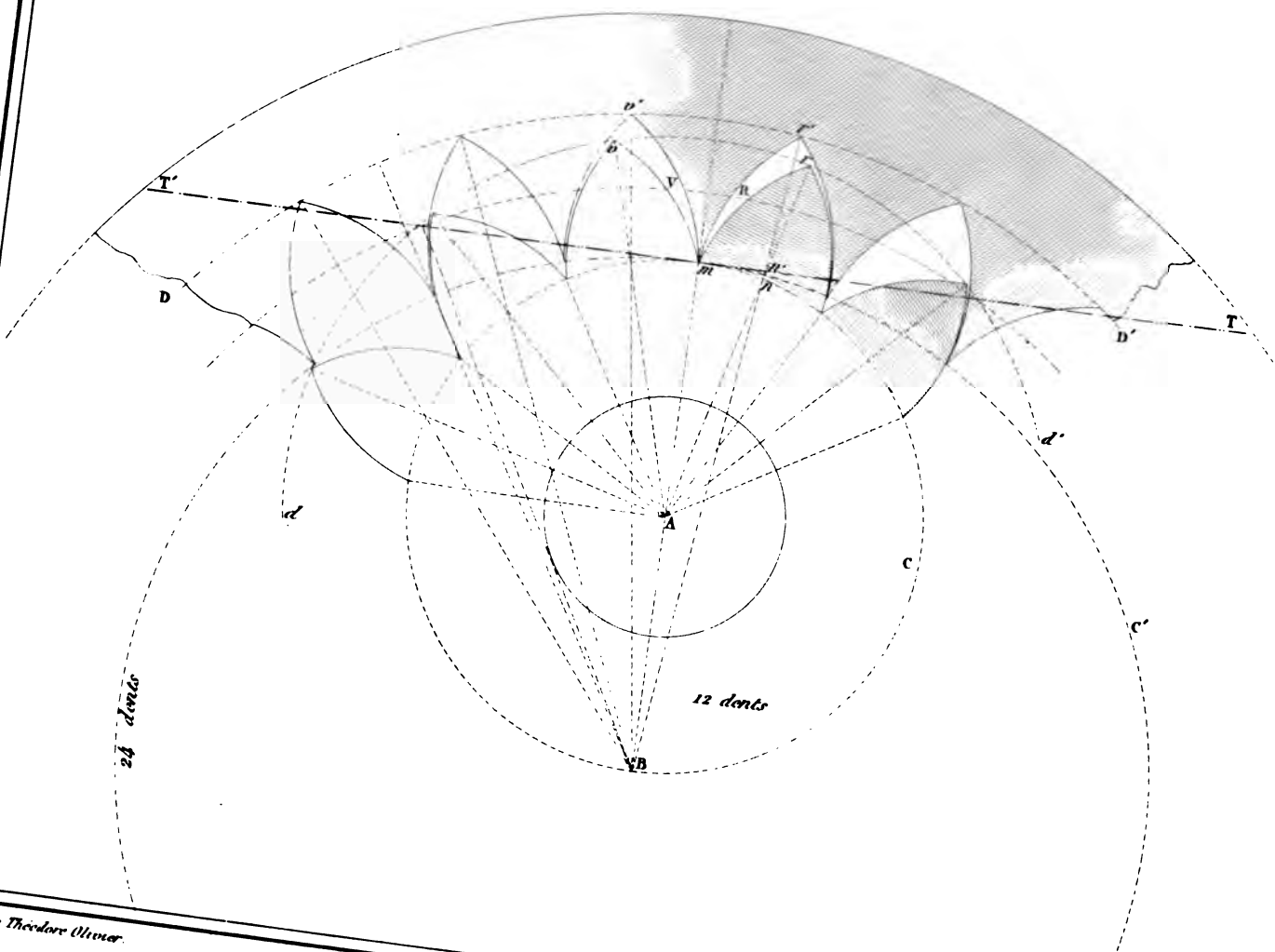


Fig. 4.

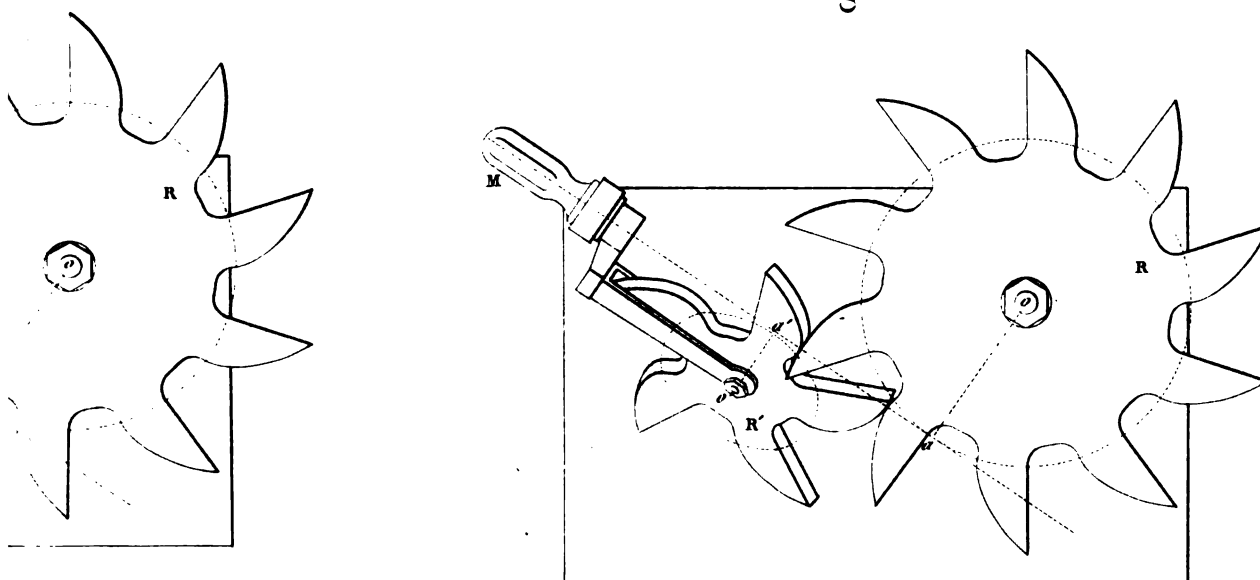


Fig. 6.

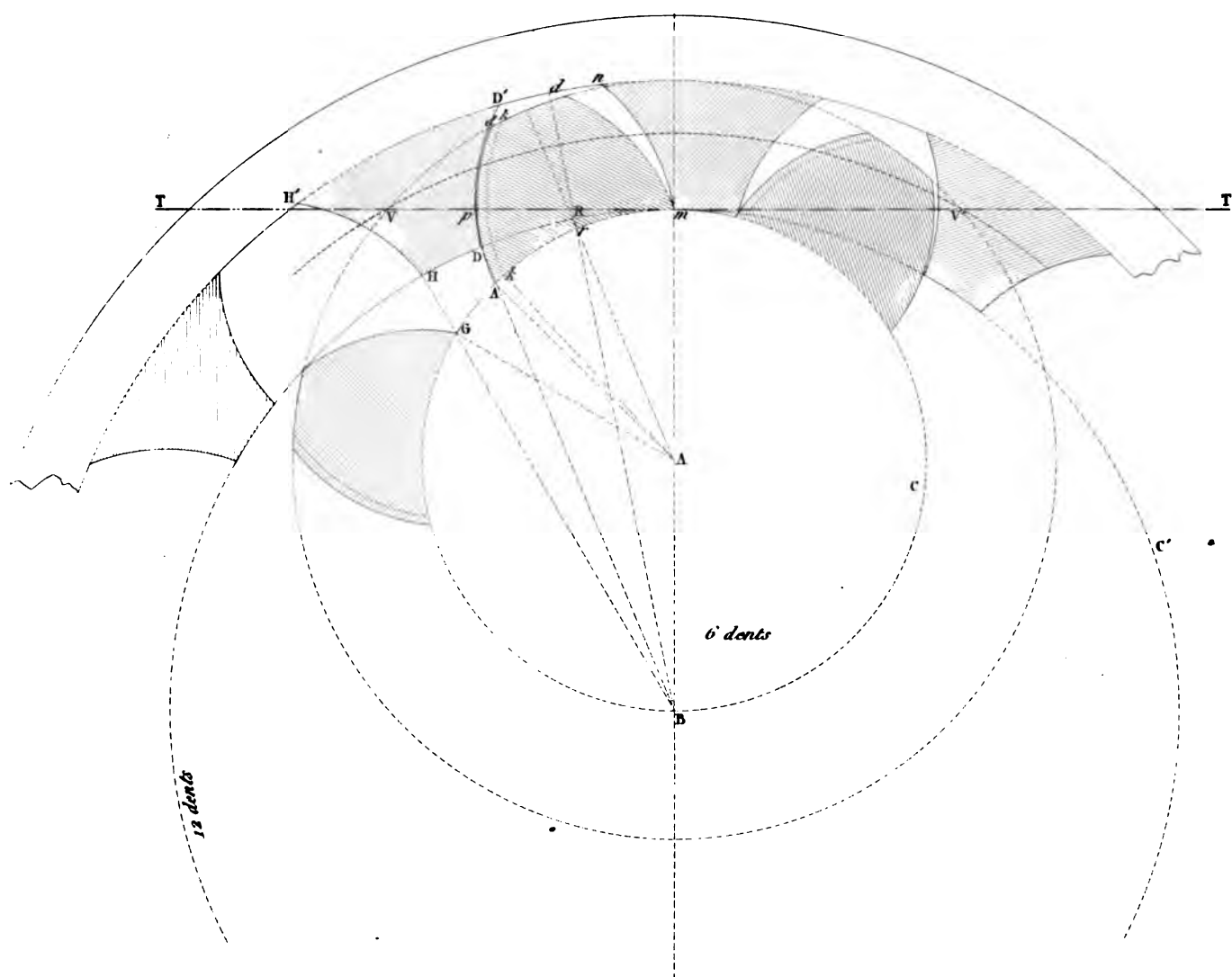








Fig. 9.

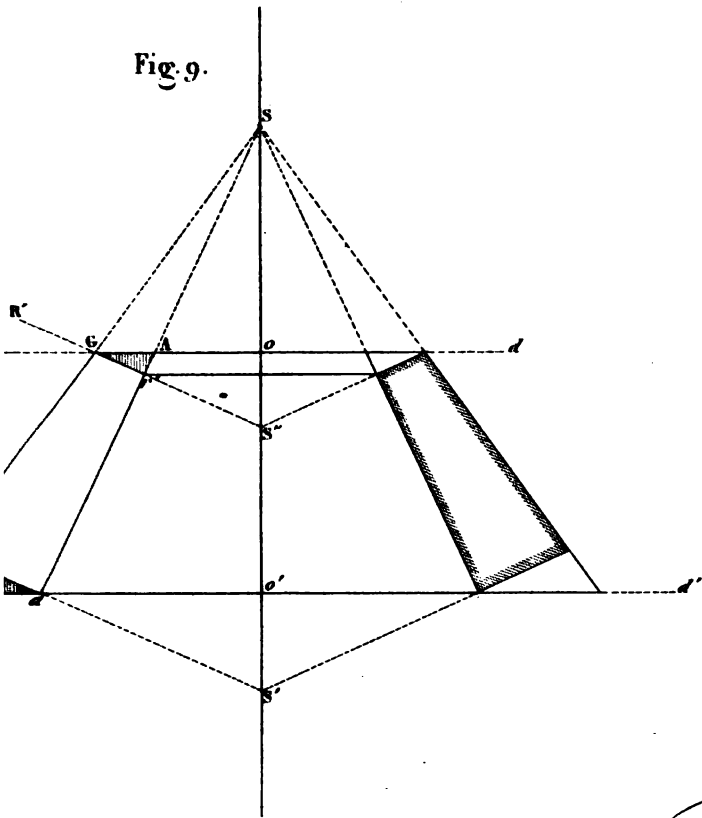


Fig. 10.

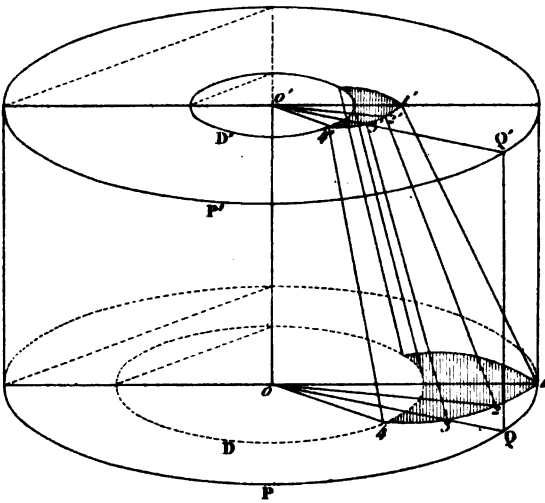


Fig. 14.

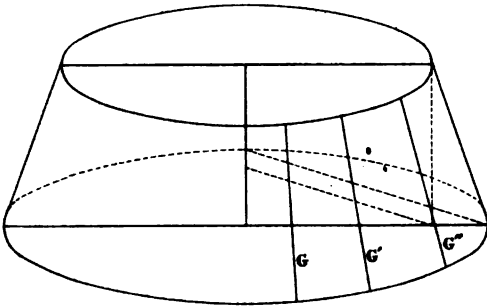


Fig. 16.

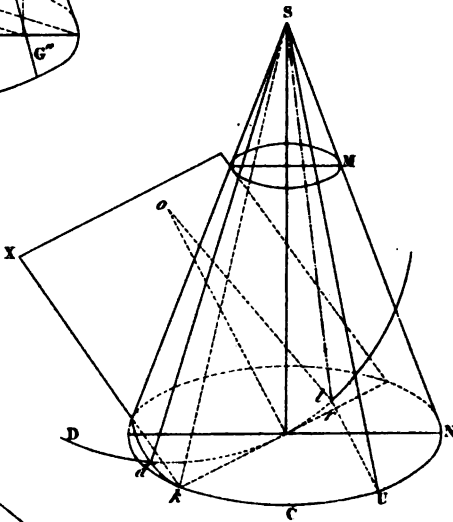


Fig. 13.

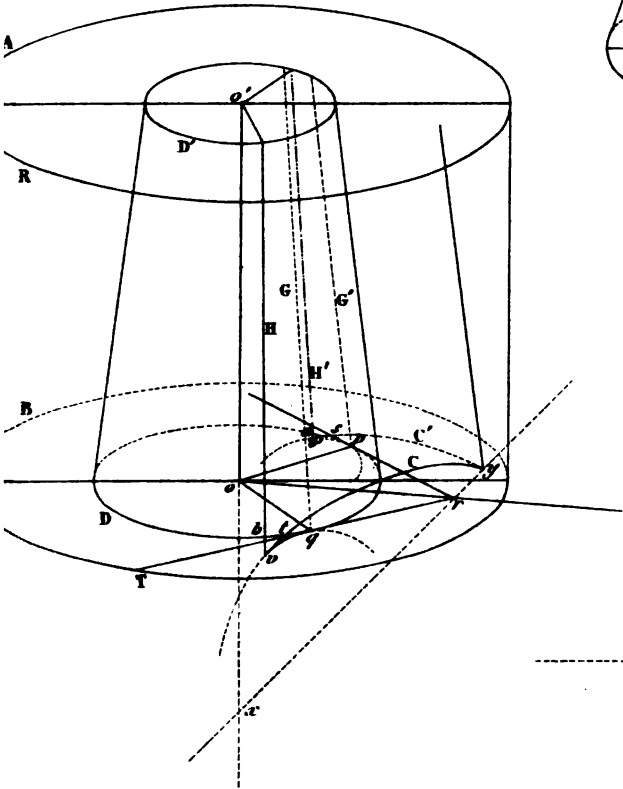


Fig. 15.

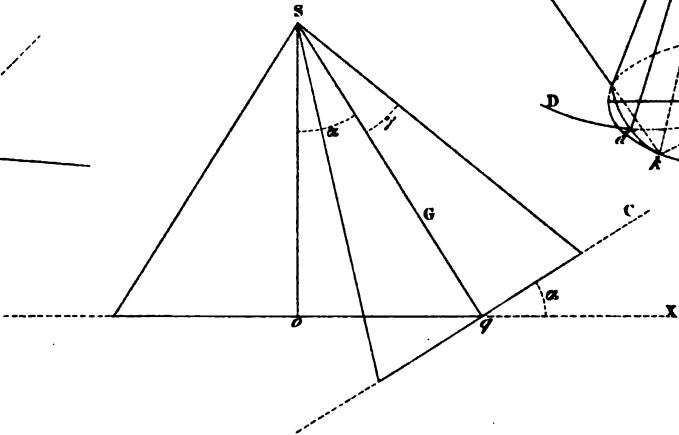








Fig. 17.

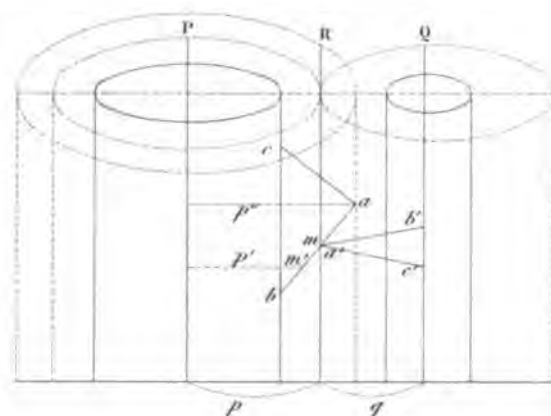


Fig. 18.

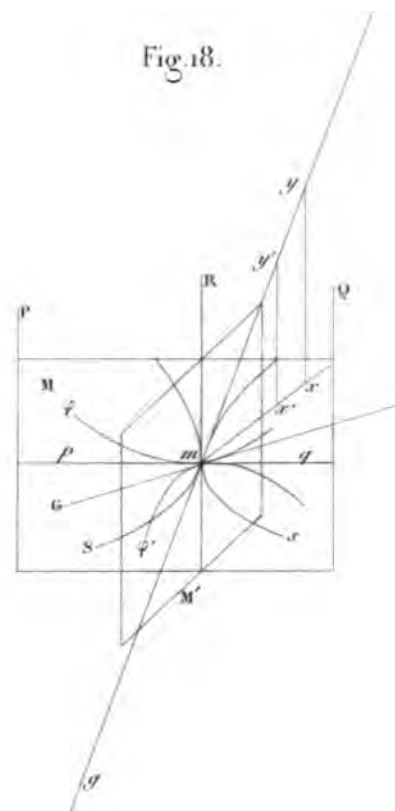


Fig. 22.

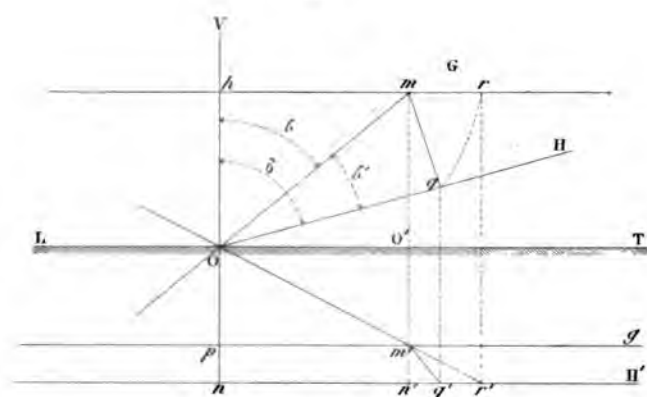


Fig. 23.

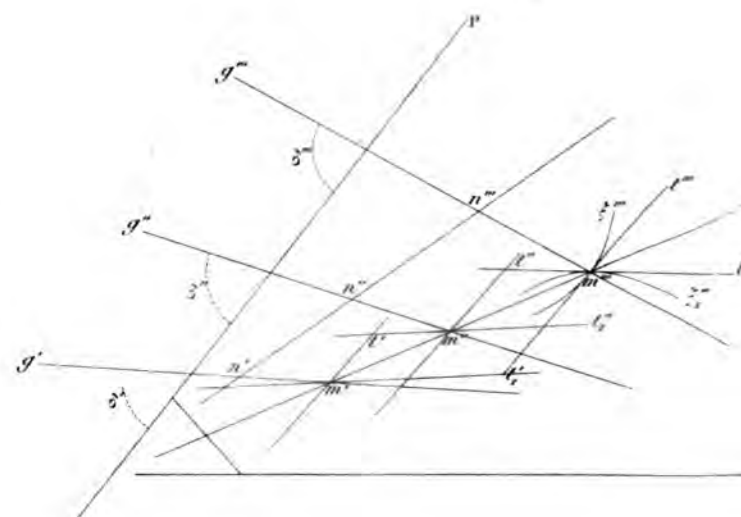


Fig. 19.

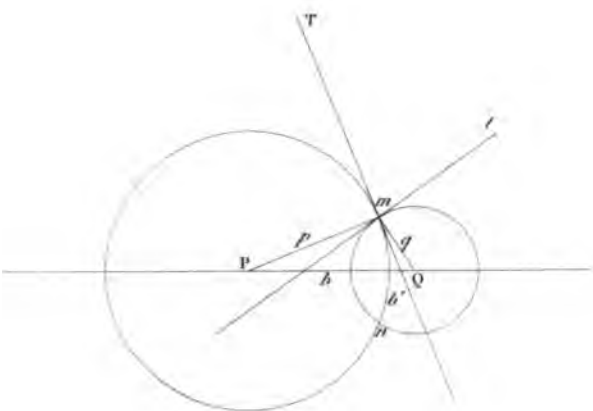


Fig. 20.



Fig. 21.

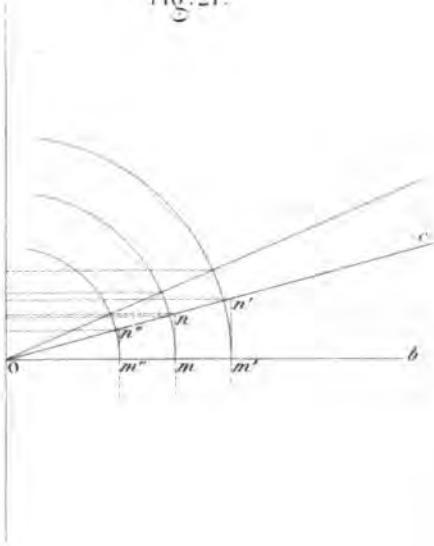


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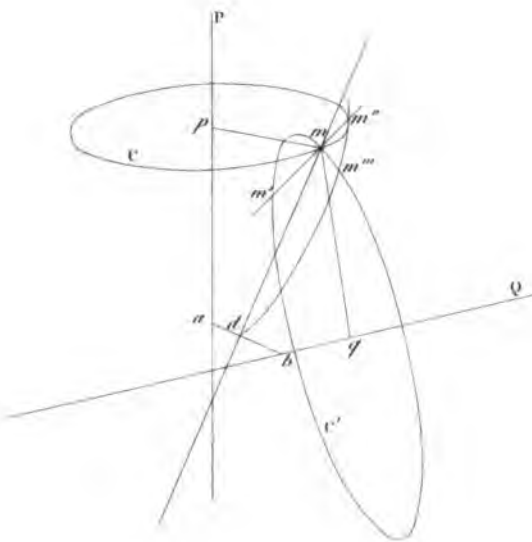
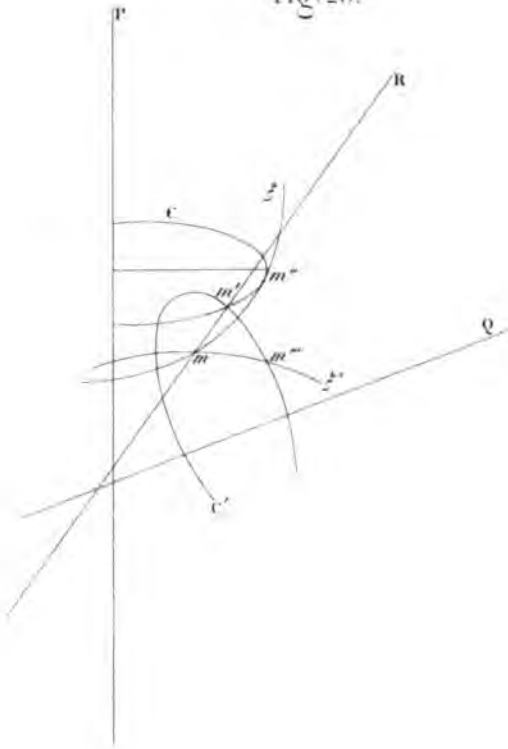


Fig. 25.







(Mémoire N° 6).

Fig. 1.

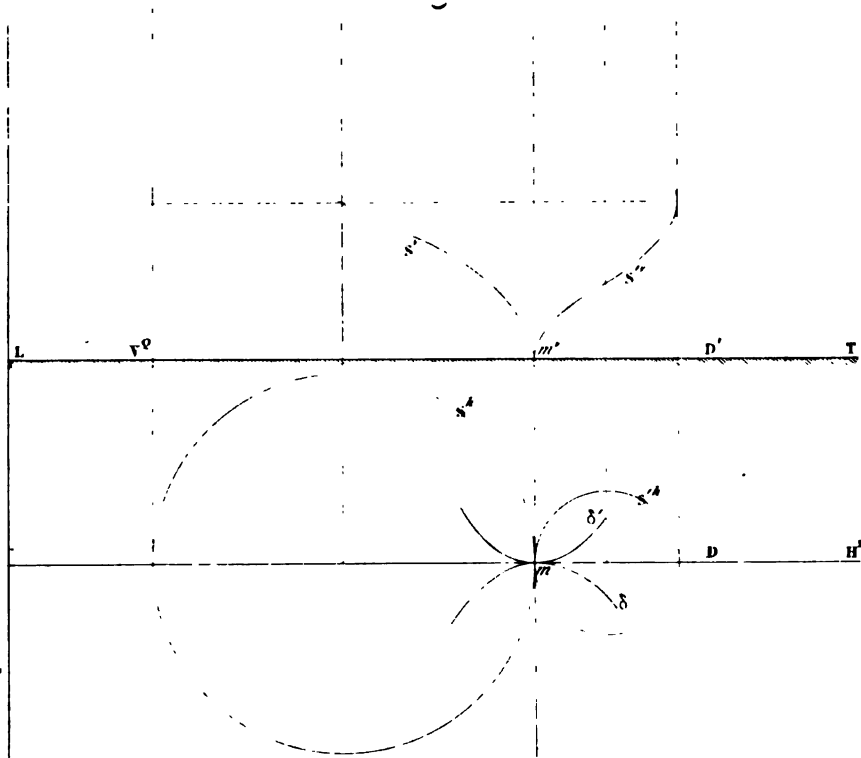


Fig. 2.

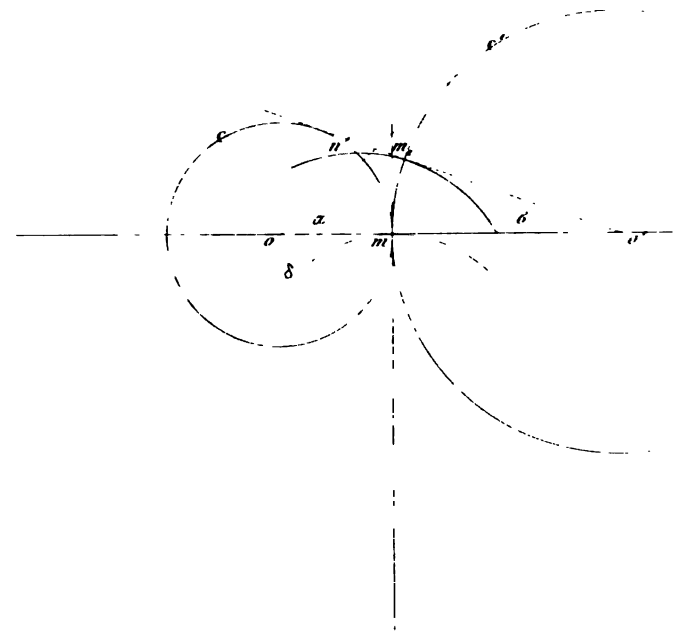


Fig. 3.

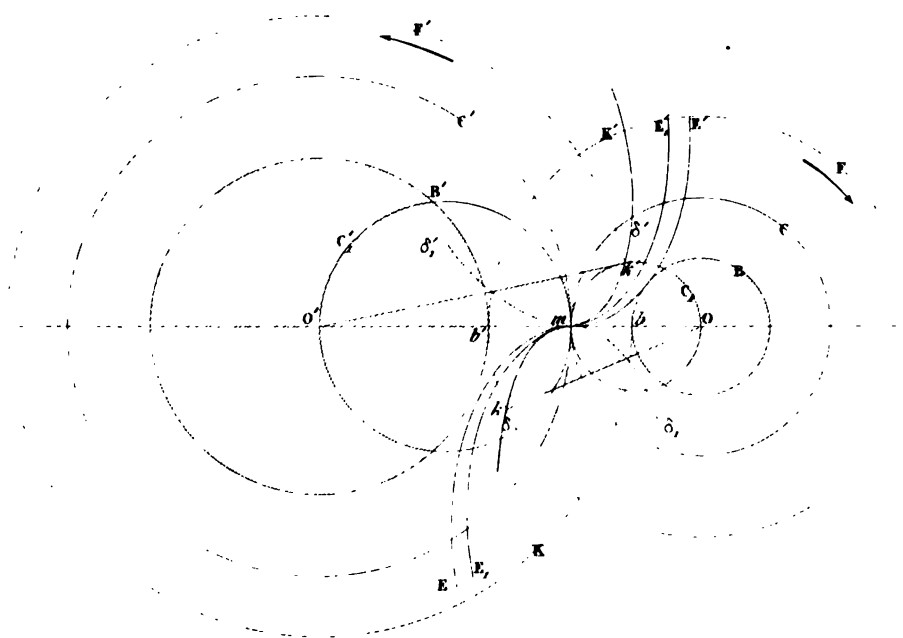


Fig. 4.



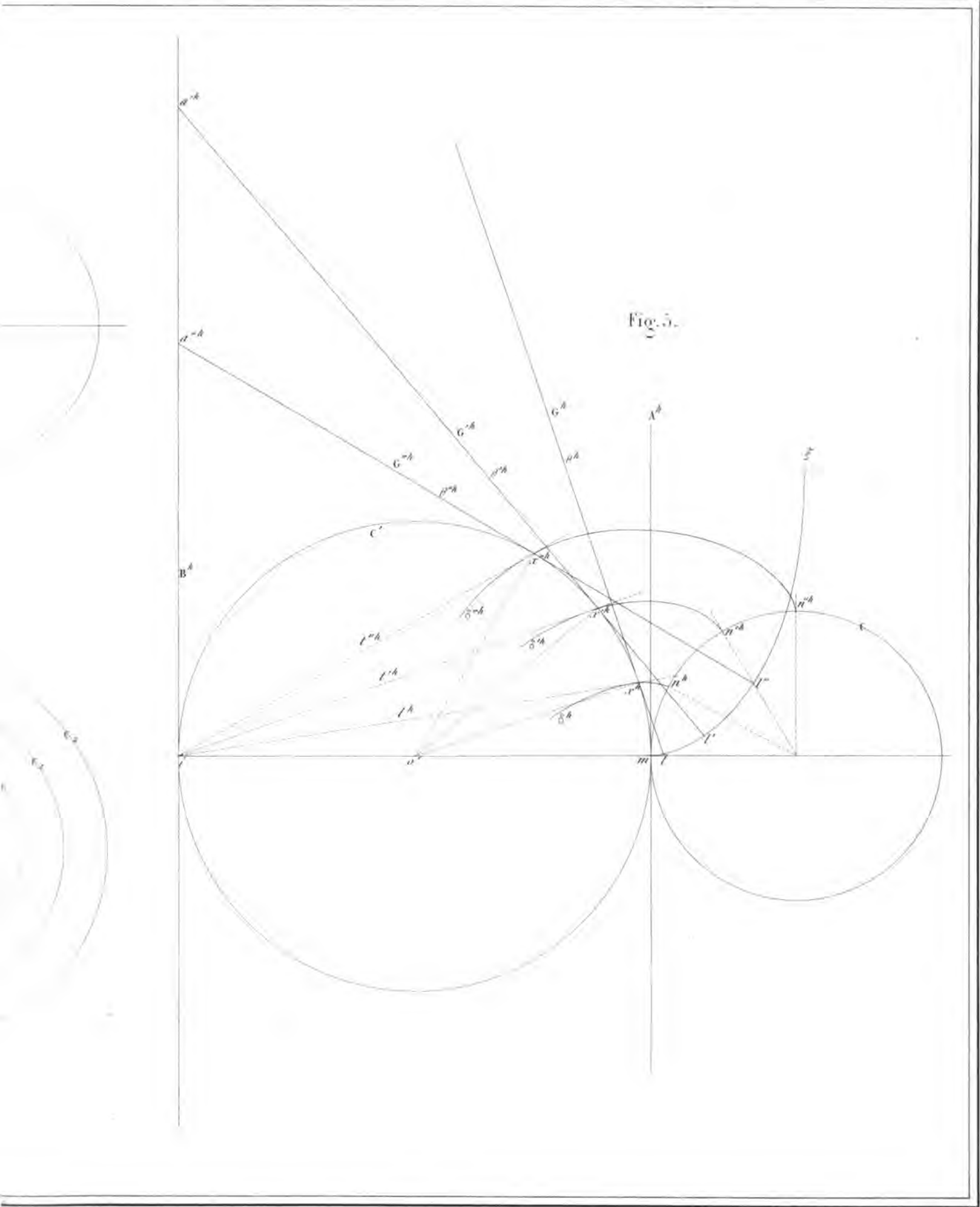








Fig. a.

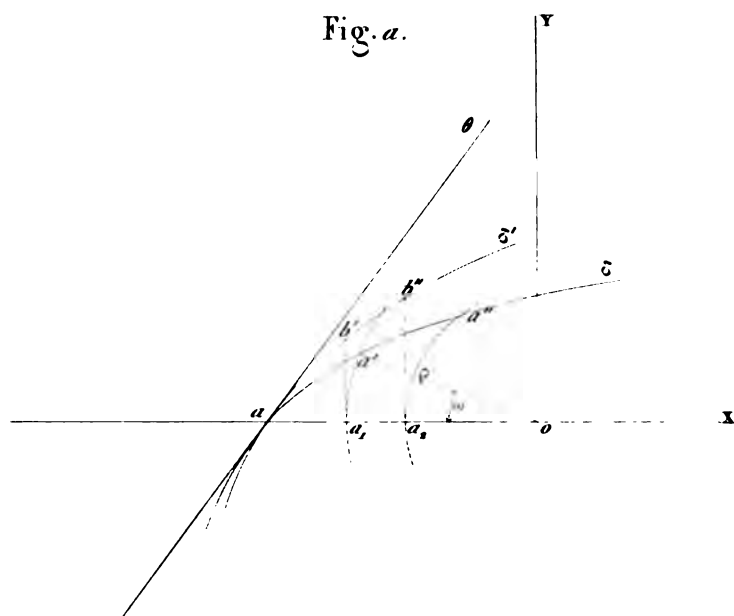


Fig. b.

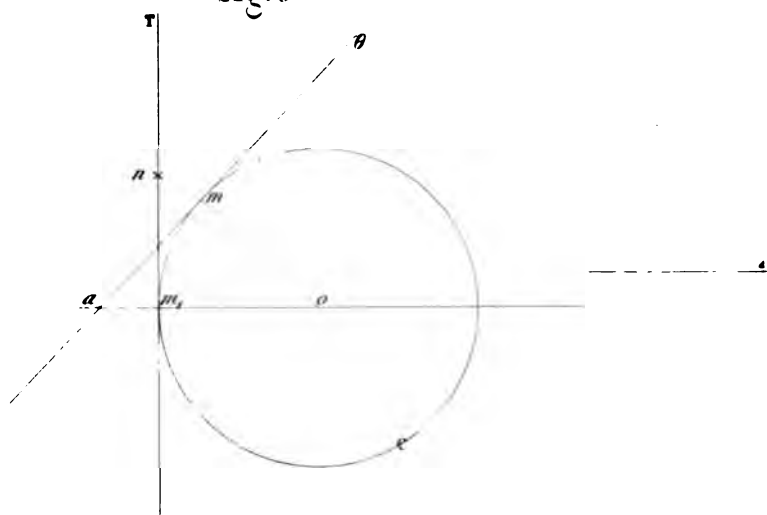


Fig. c.

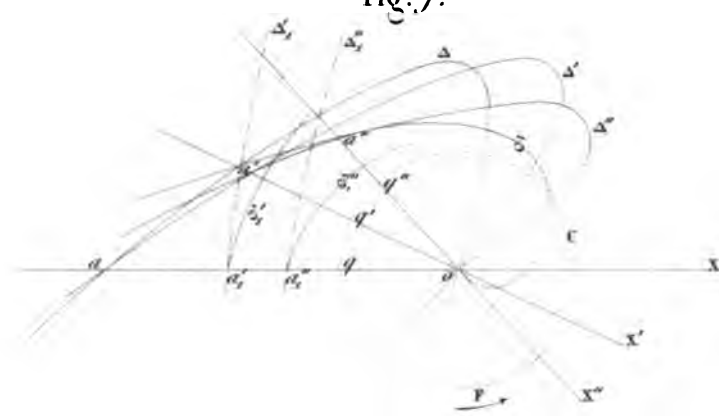


Fig. d.

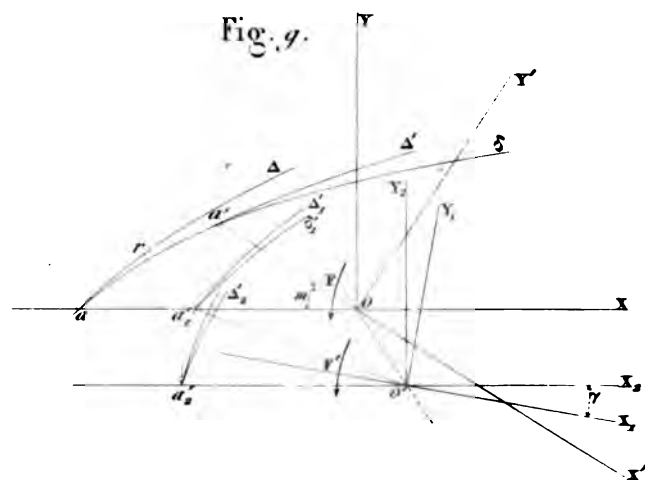
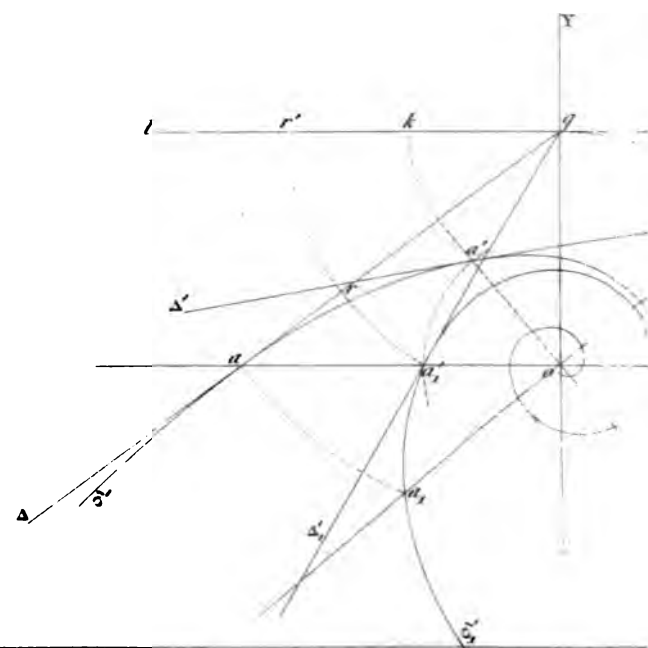
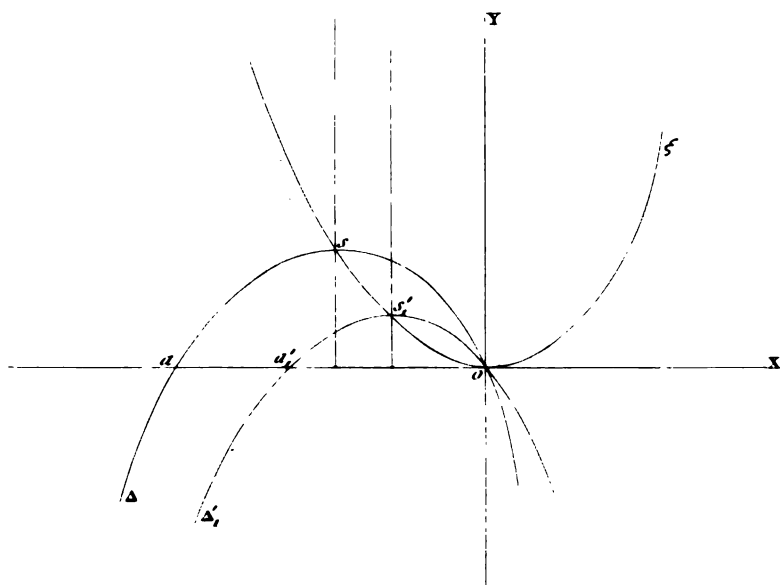


Fig. e.



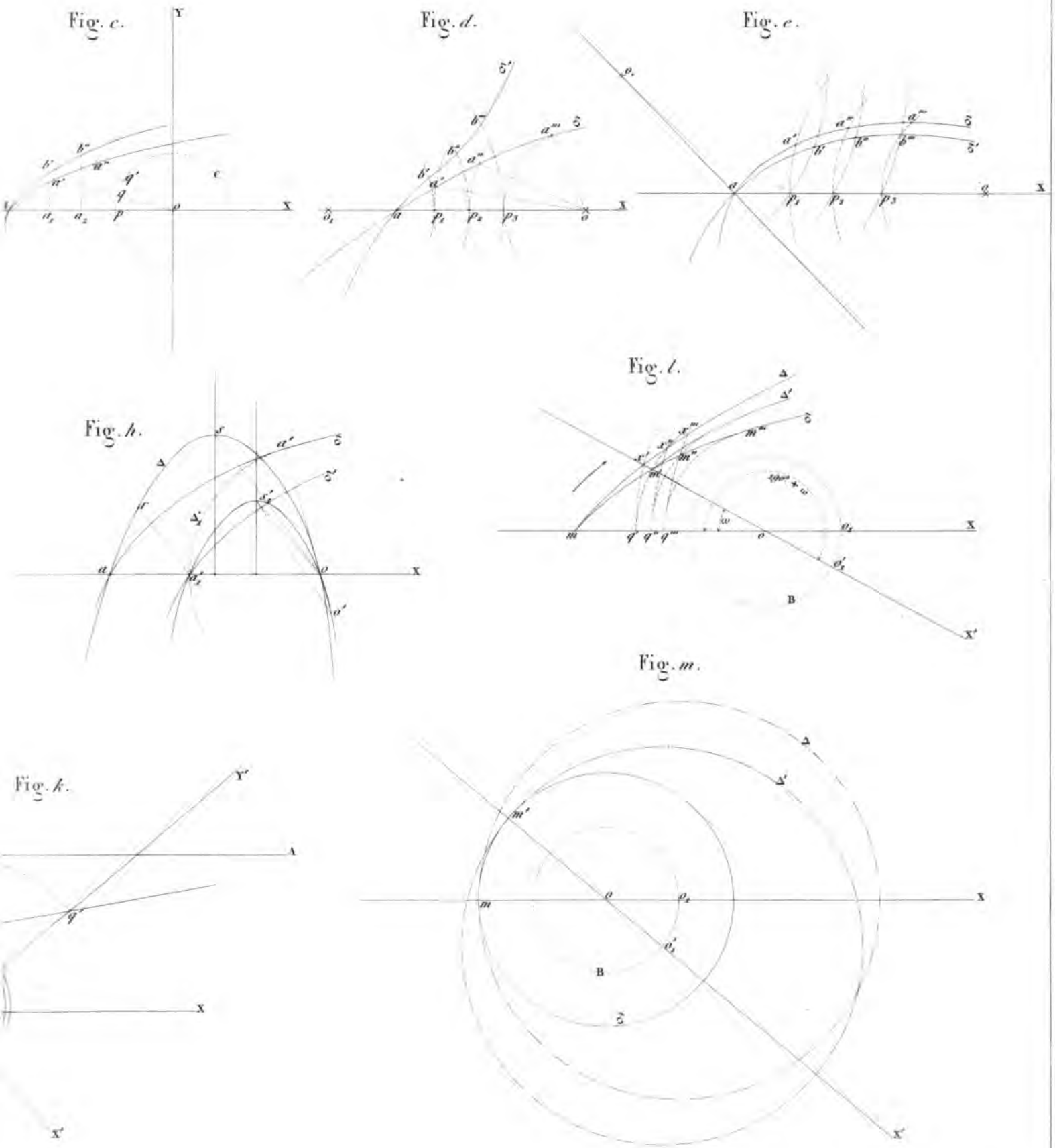






Fig.:

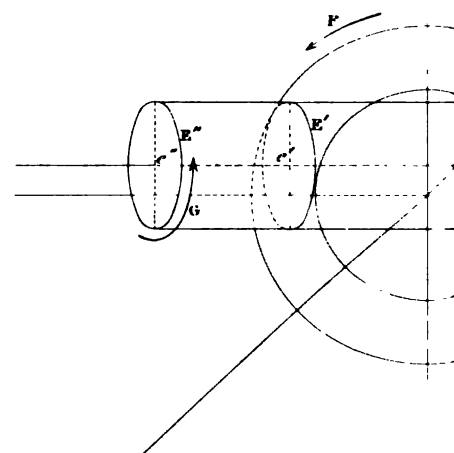
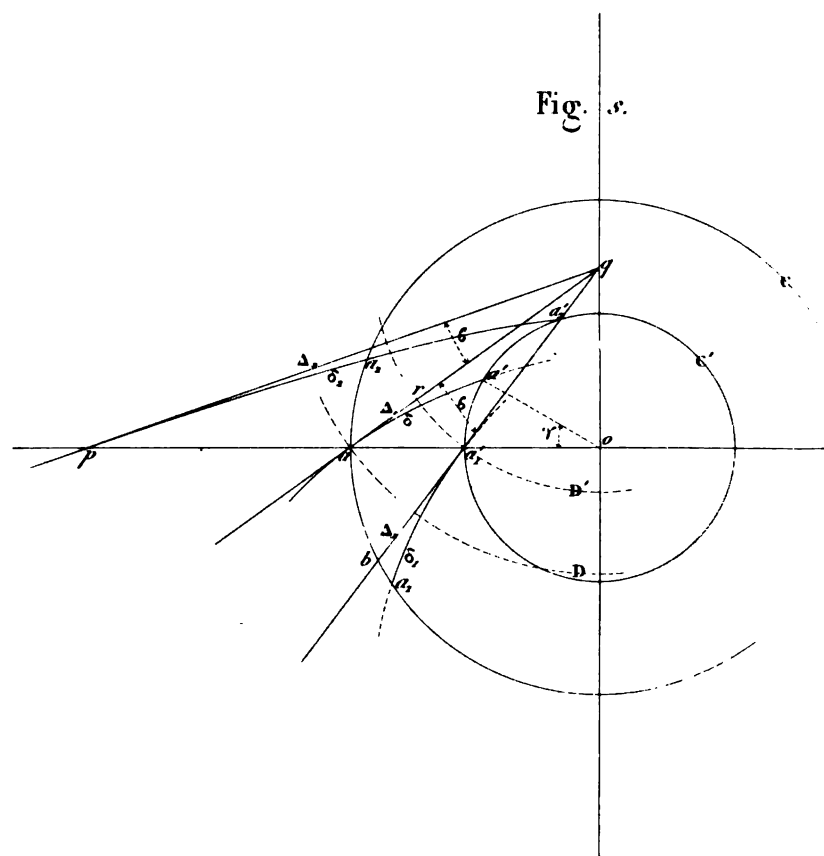
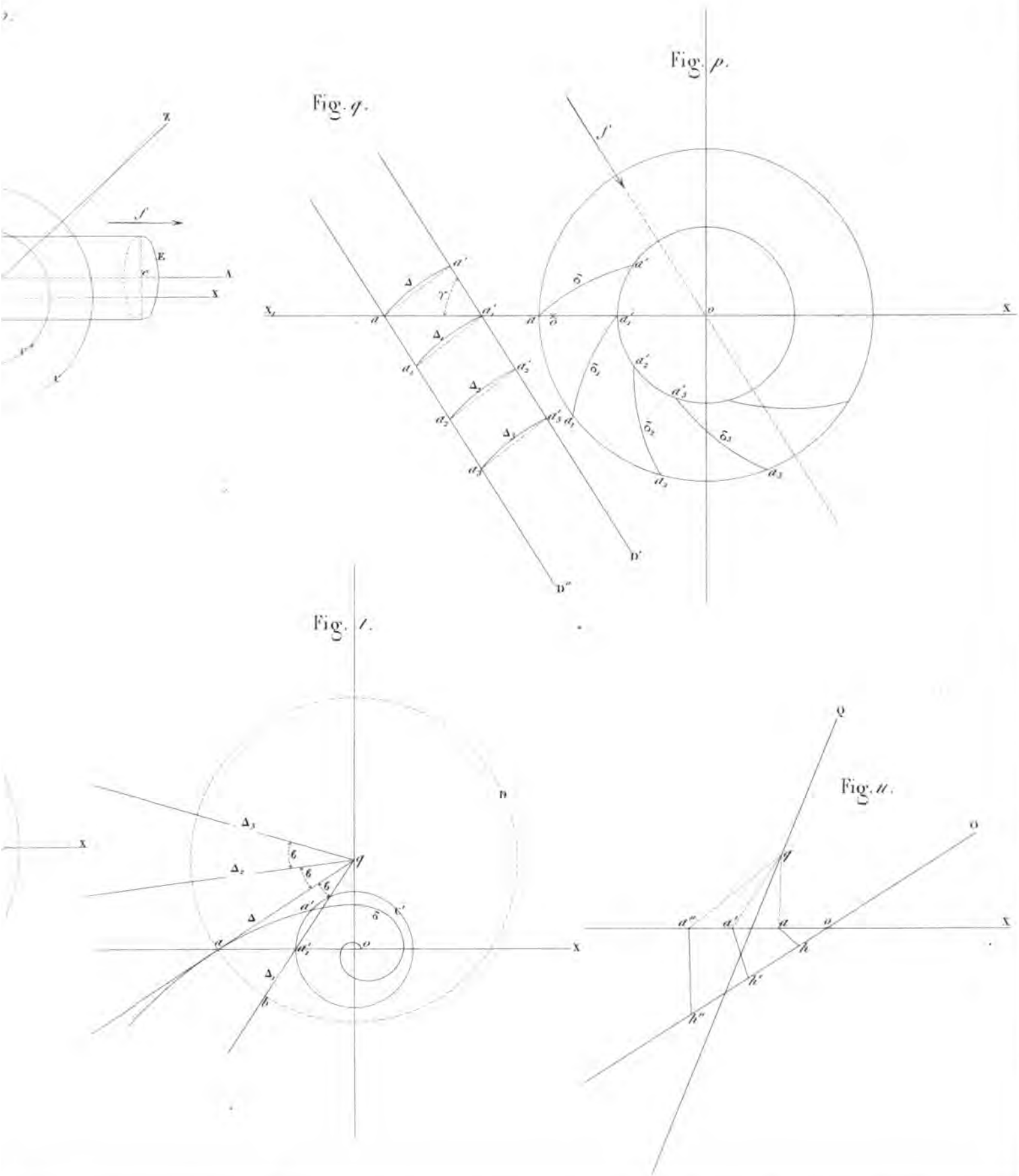


Fig.	s.
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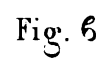
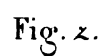
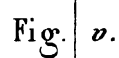












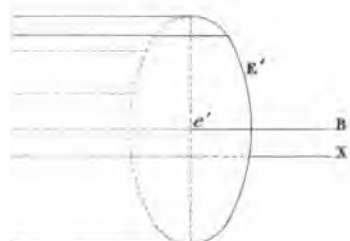


Fig. 7.

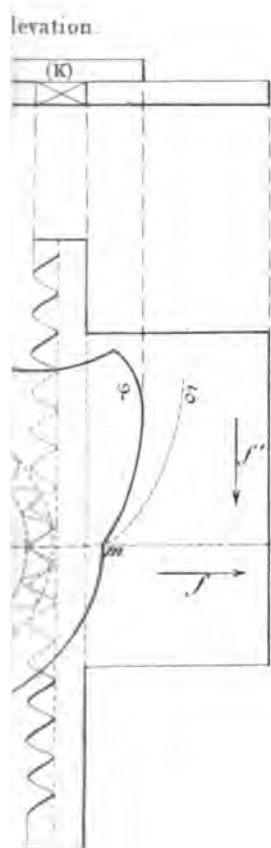
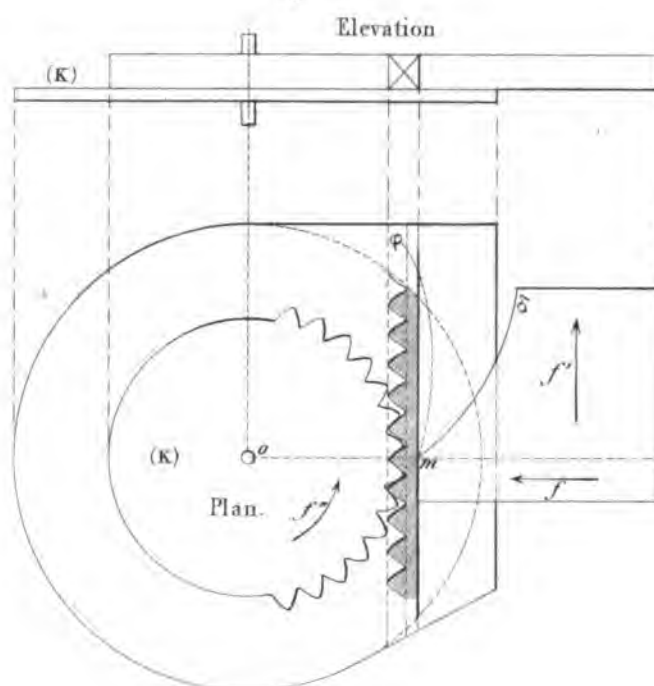
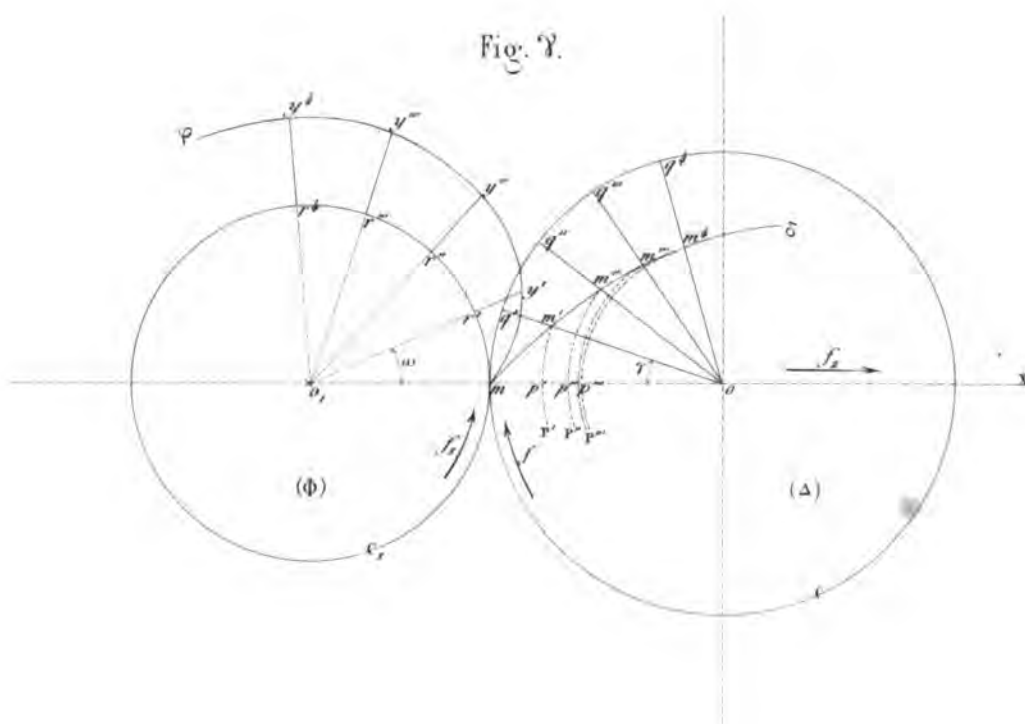


Fig. 8.



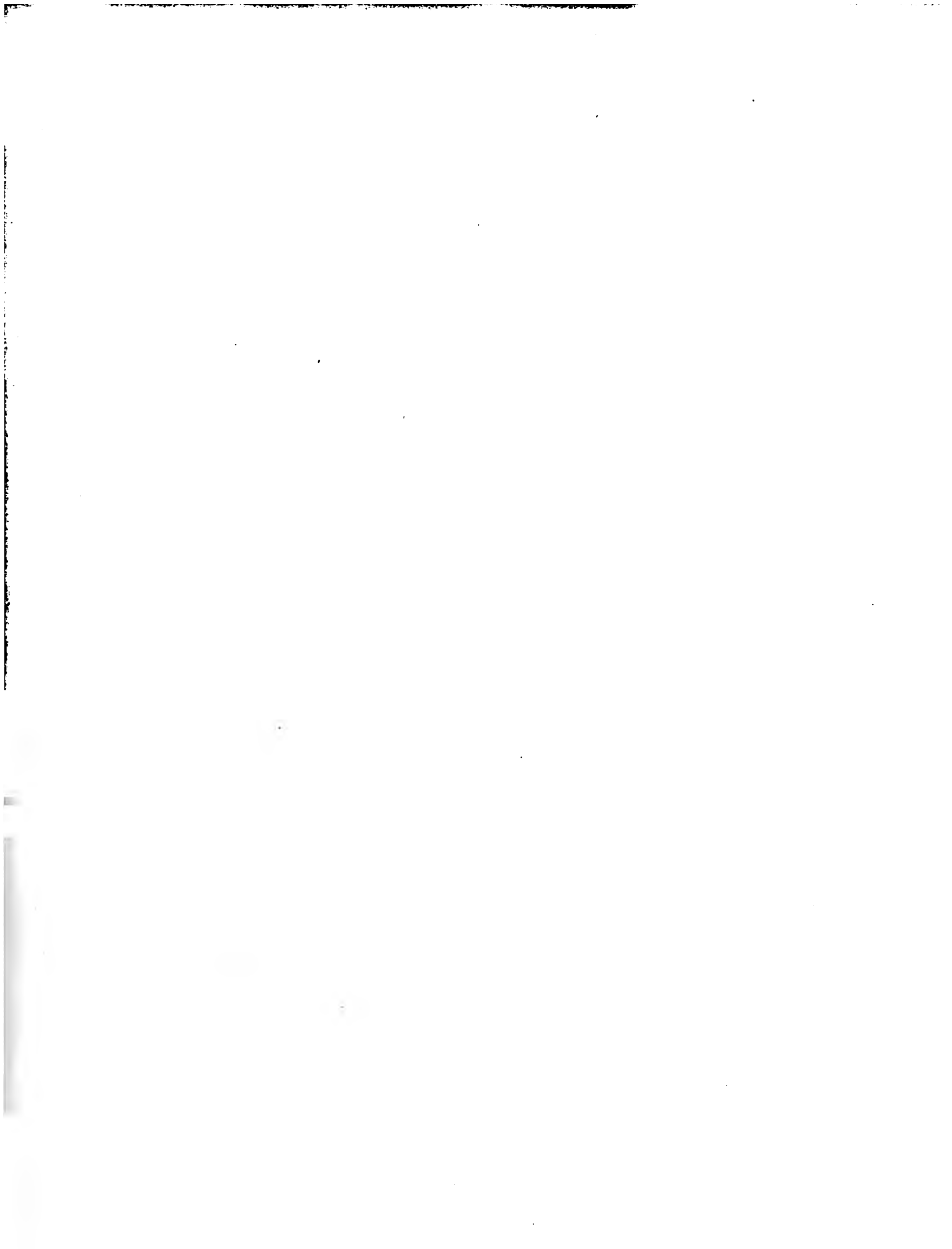




Fig.  $\omega$ .

Les angles  
 $\omega$  et  $\gamma$   
(de la Fig. 7 Pl. 51)  
étant inégaux  
alors on a :  
 $\rho > \rho_1$  ou  $\rho < \rho_1$ .

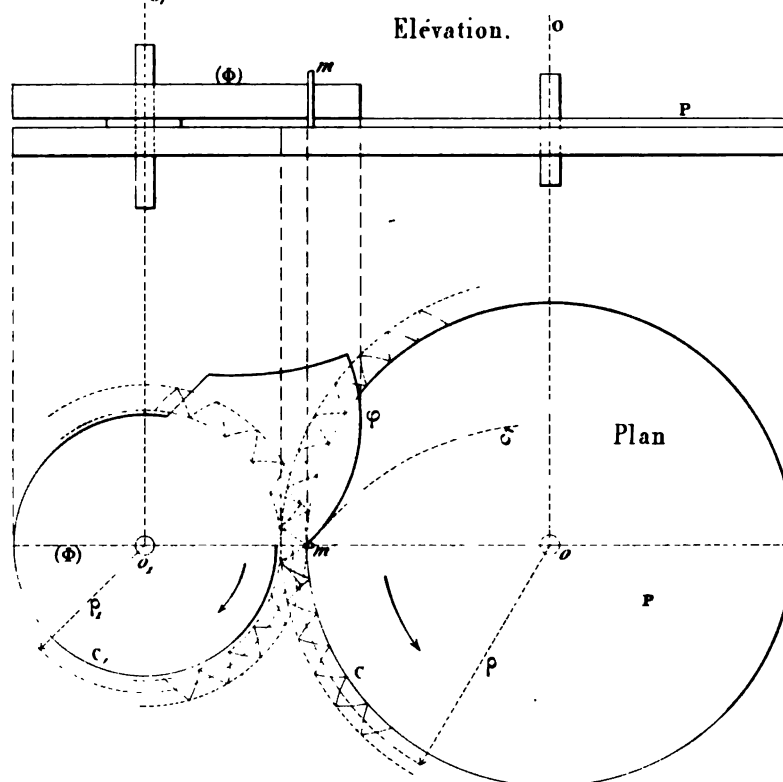


Fig.  $\omega_{\text{sur}}$

Les angles  
 $\omega$  et  $\gamma$   
(de la Fig. 7 Pl. 51)  
étant égaux  
alors on a :  
 $\rho = \rho_1$ .

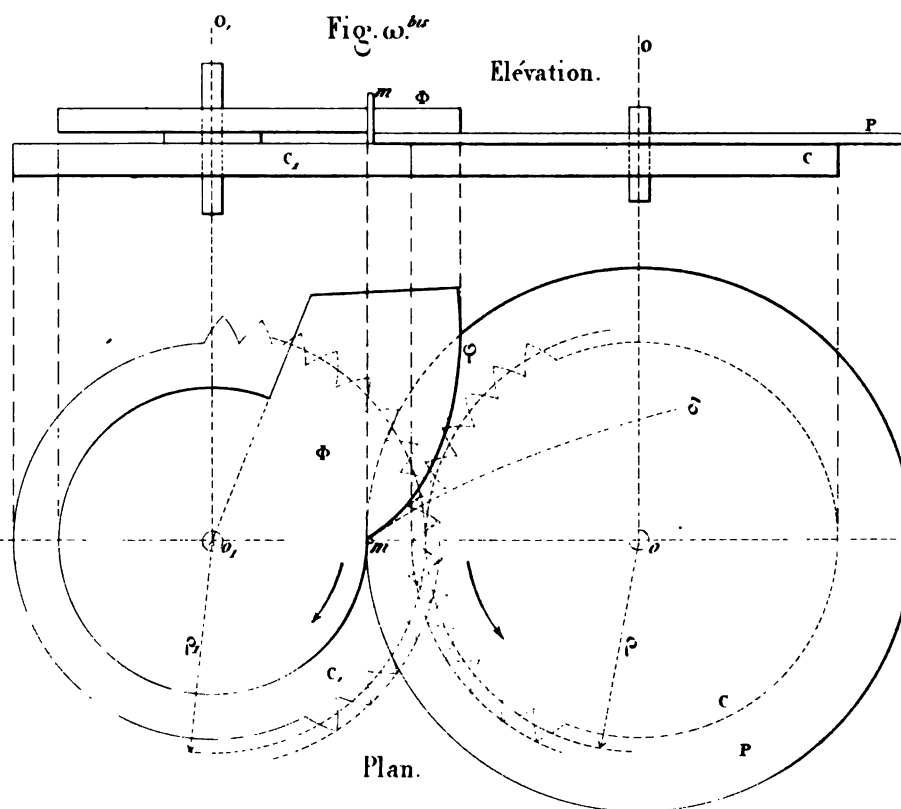


Fig. 6.

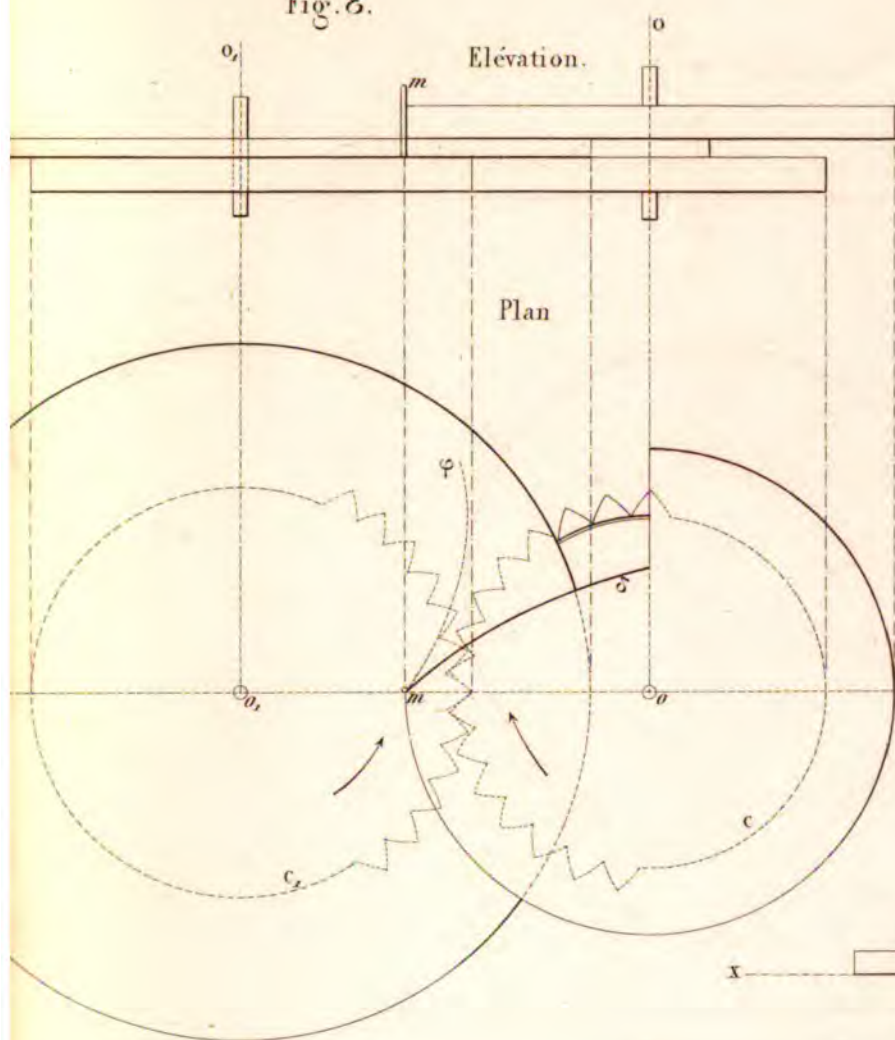


Fig. 7.

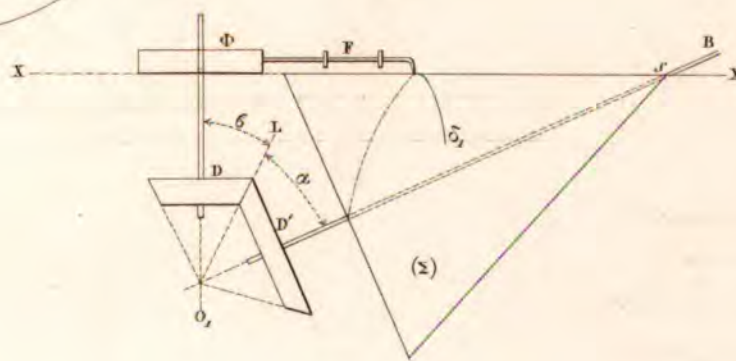


Fig. 8.

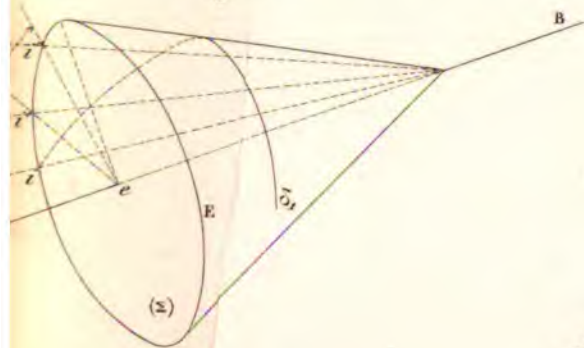
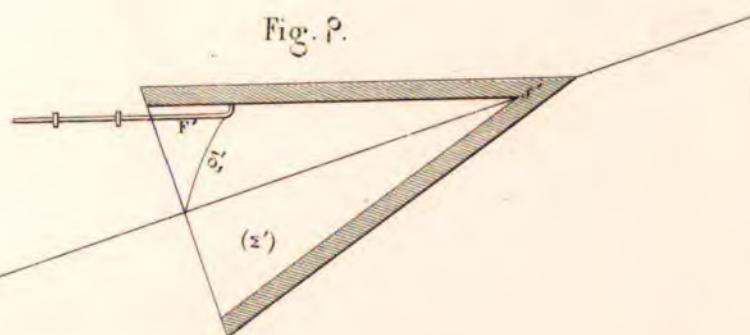


Fig. 9.



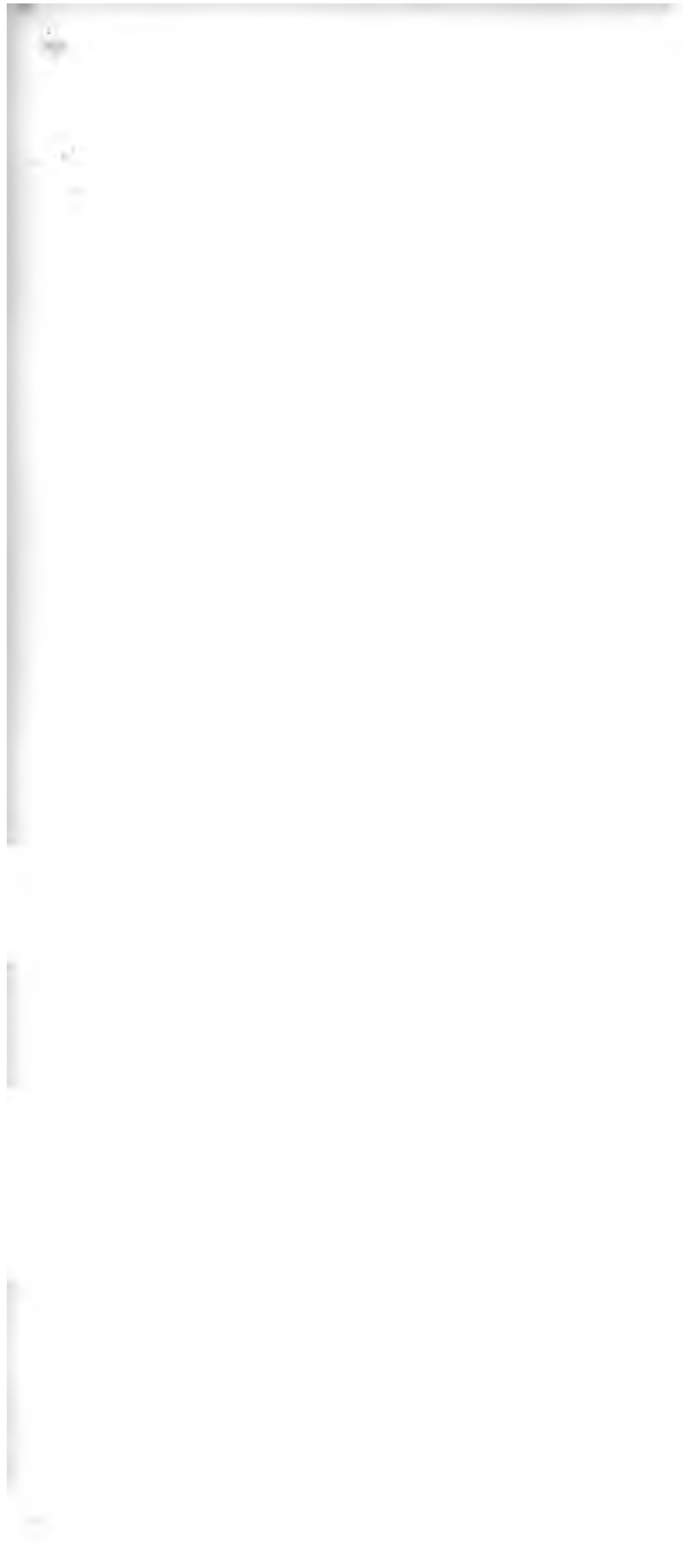






Fig.  $\mu$ .

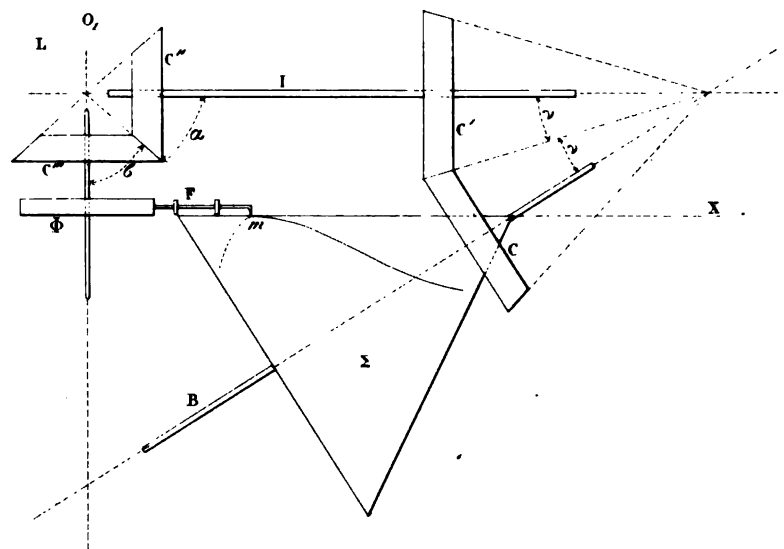


Fig.  $\nu$ .

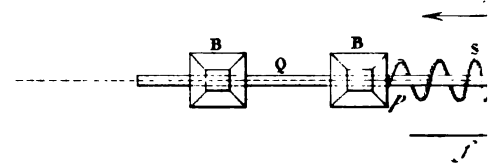


Fig.  $\varphi$ .

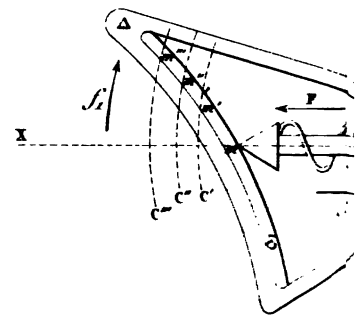
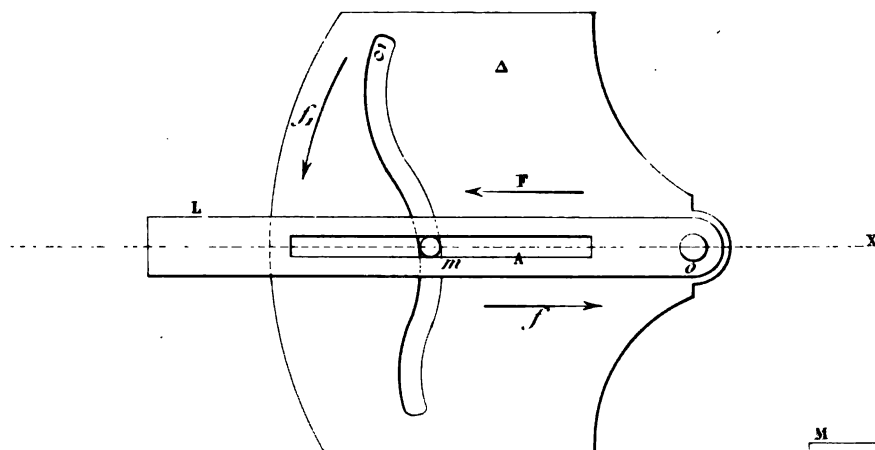


Fig.  $\Delta$ .

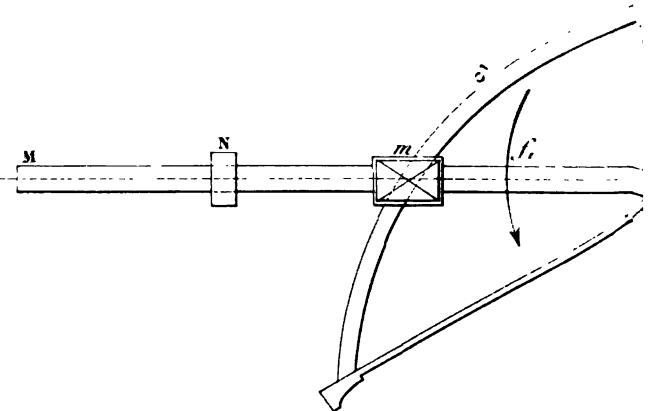
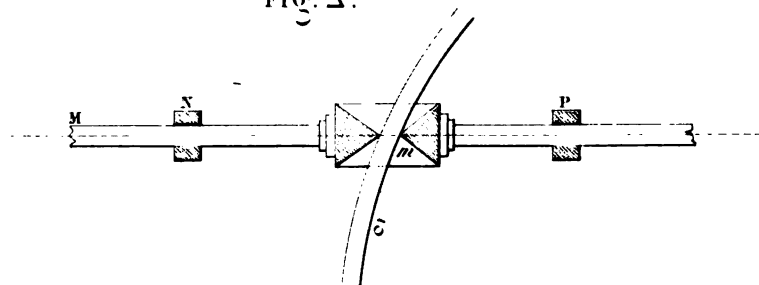


Fig.  $\Delta'$ .



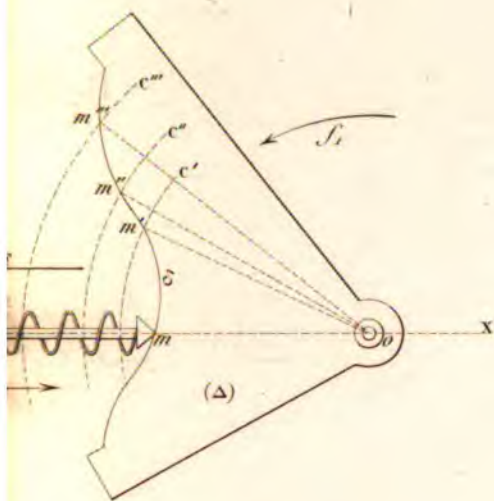


Fig. ξ.

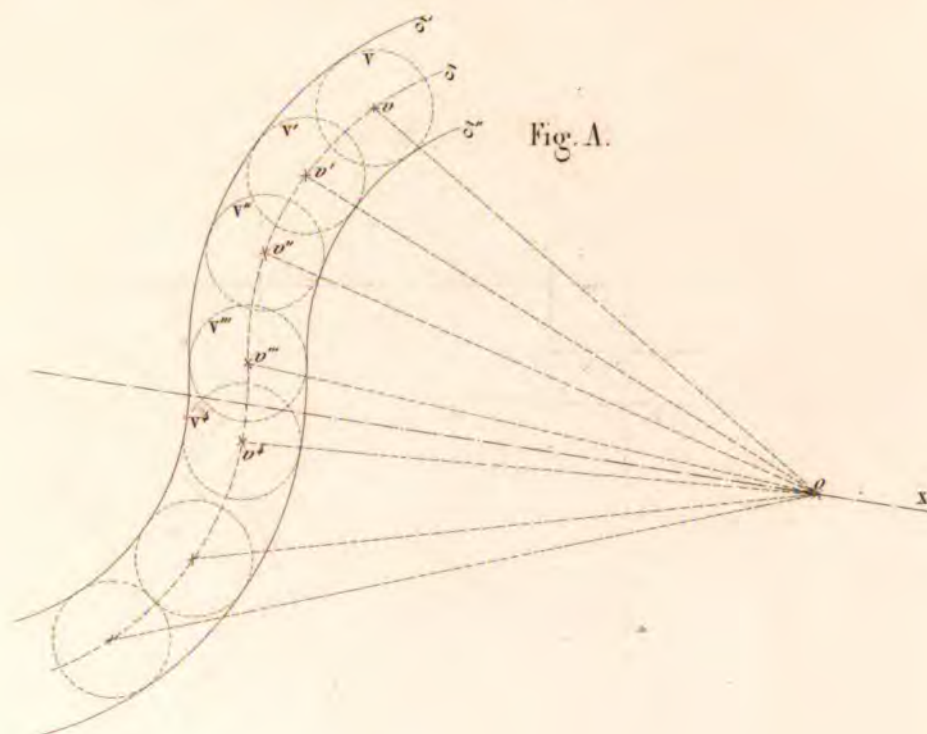
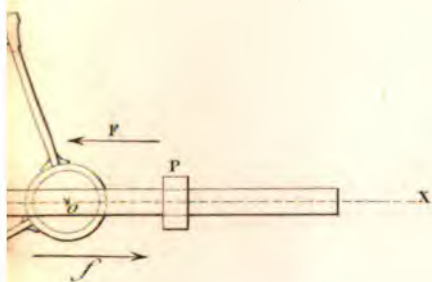
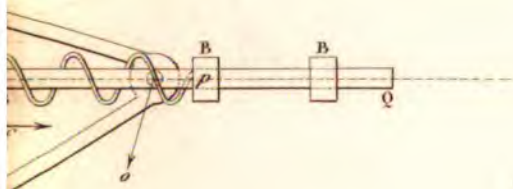
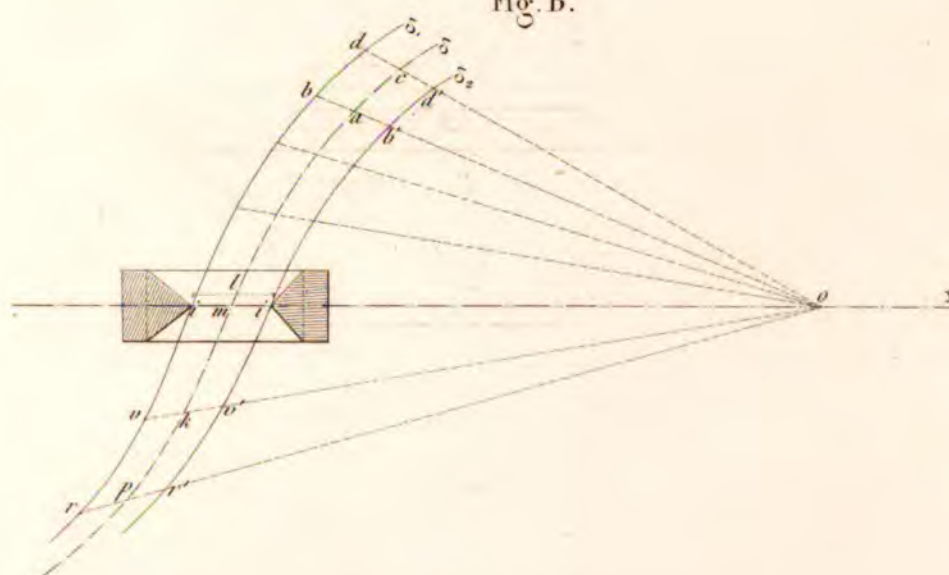
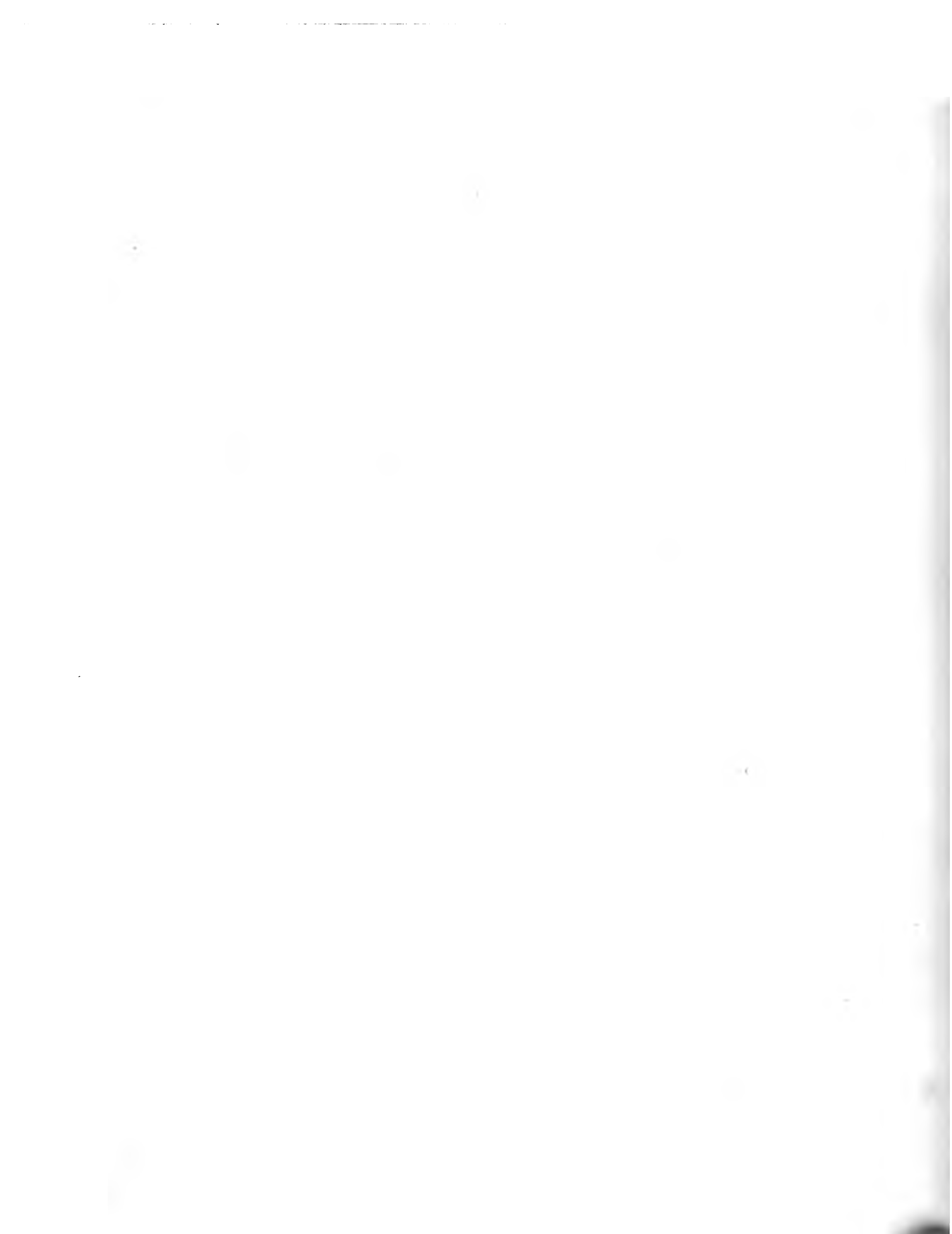
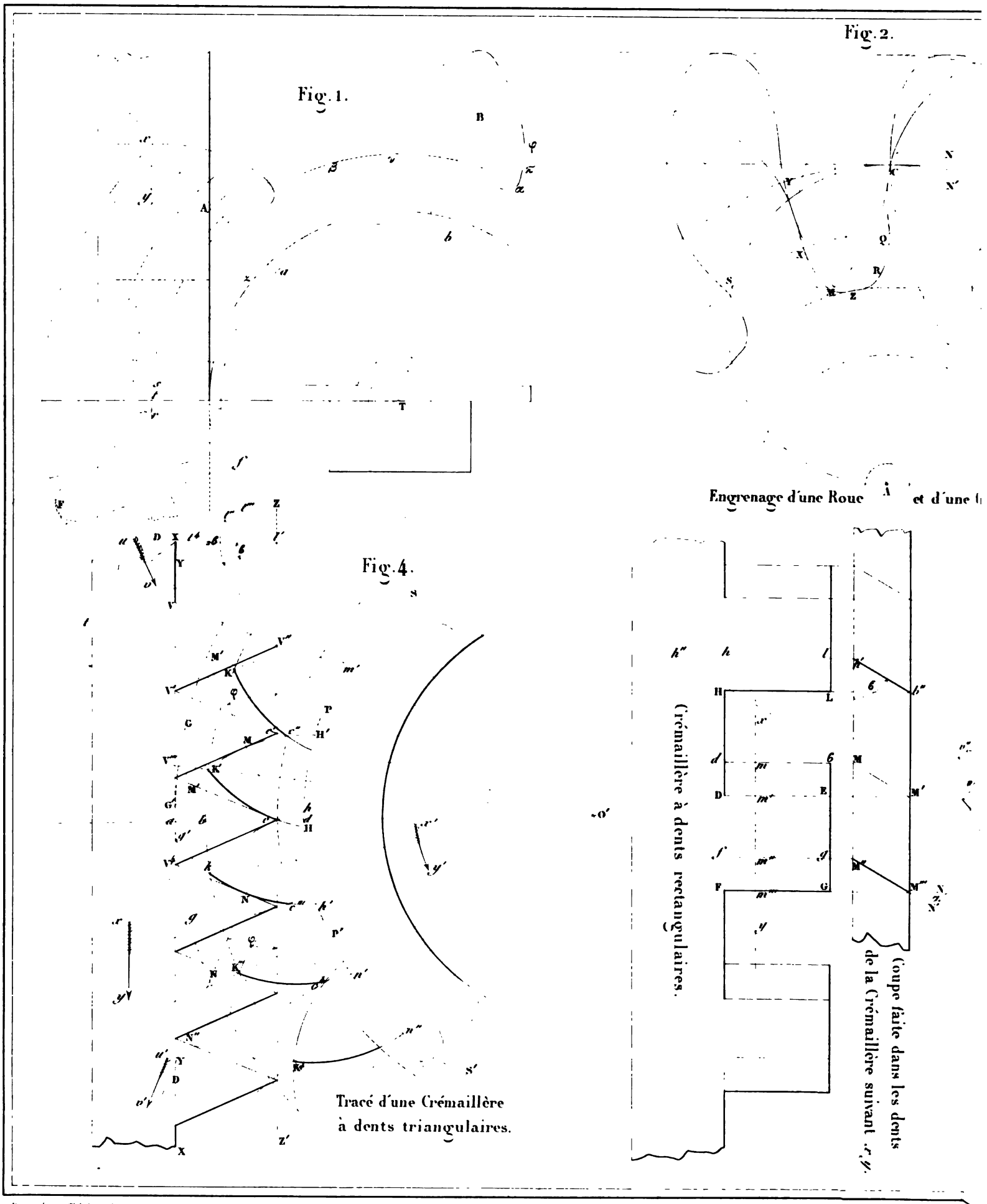


Fig. B.









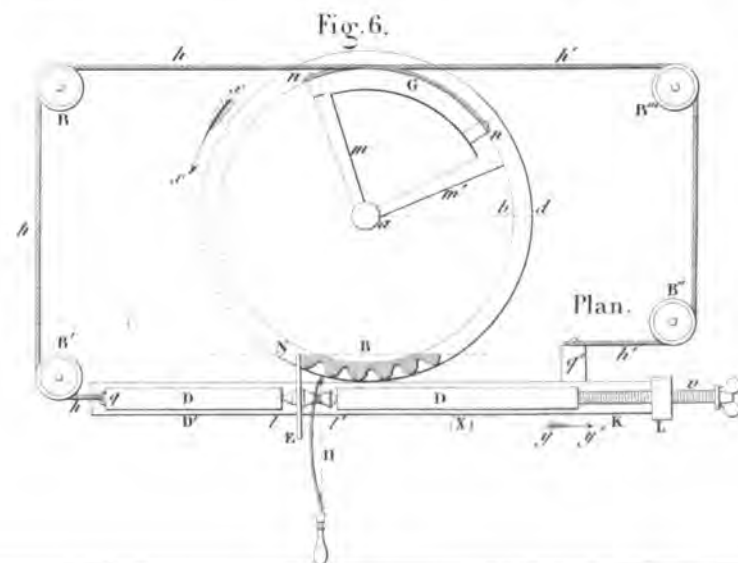
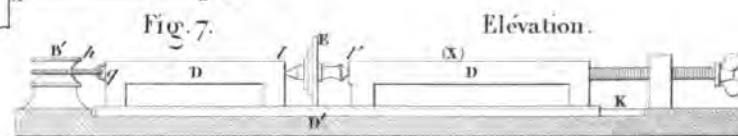
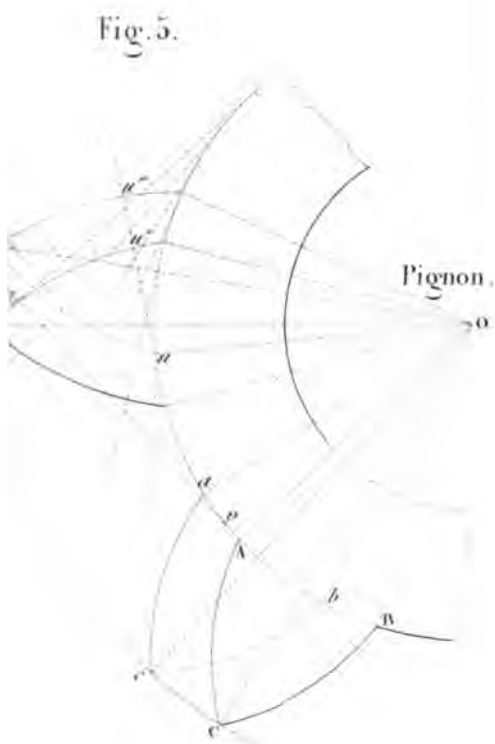
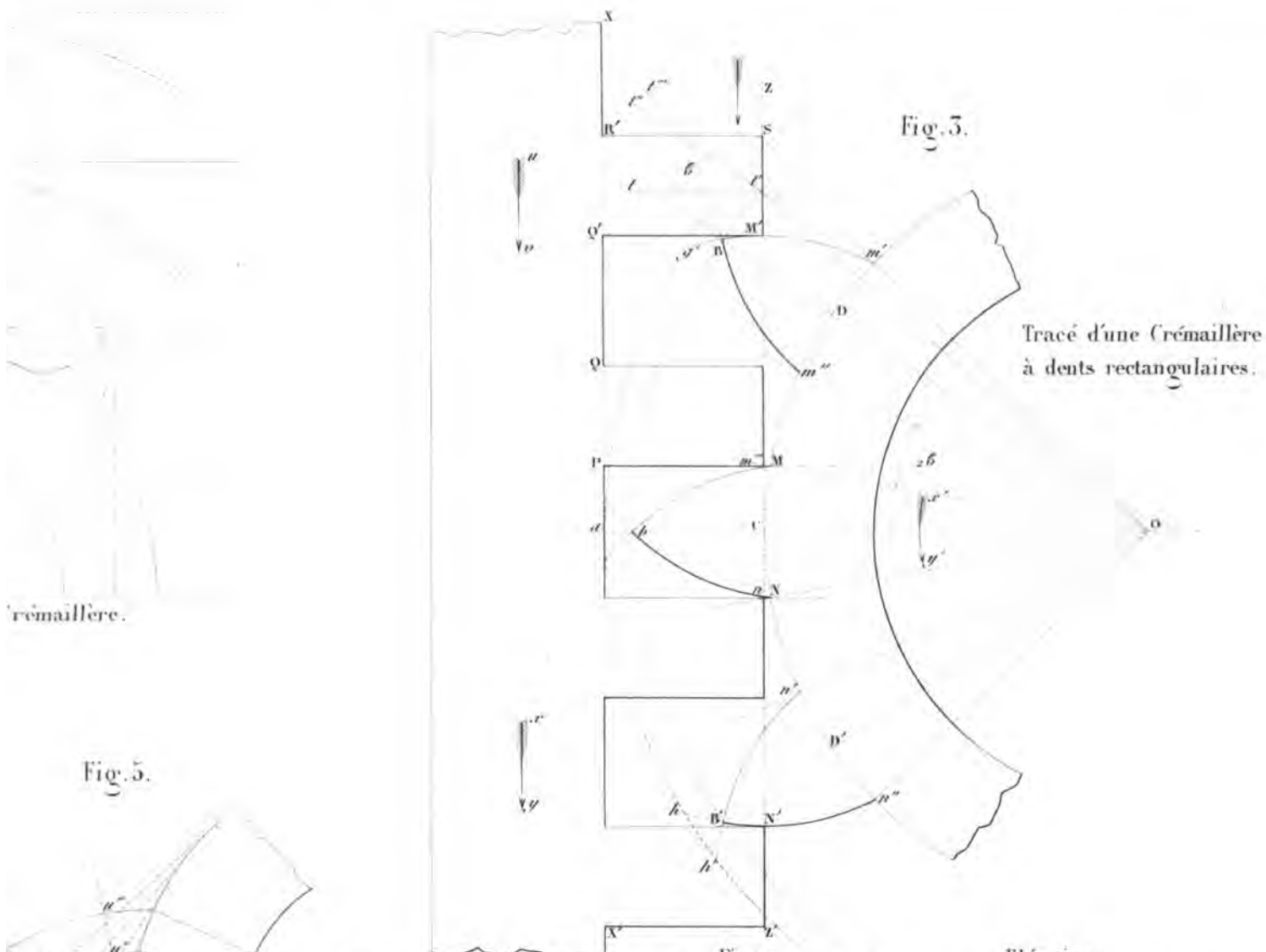








Fig. 11.

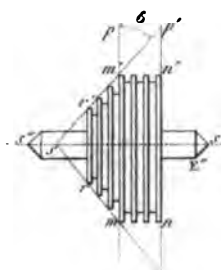


Fig. 11.<sup>bis</sup>

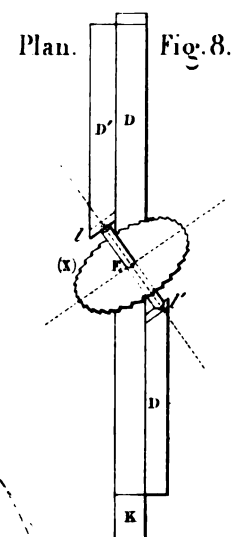
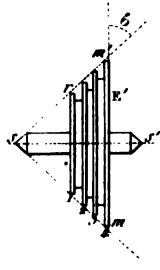
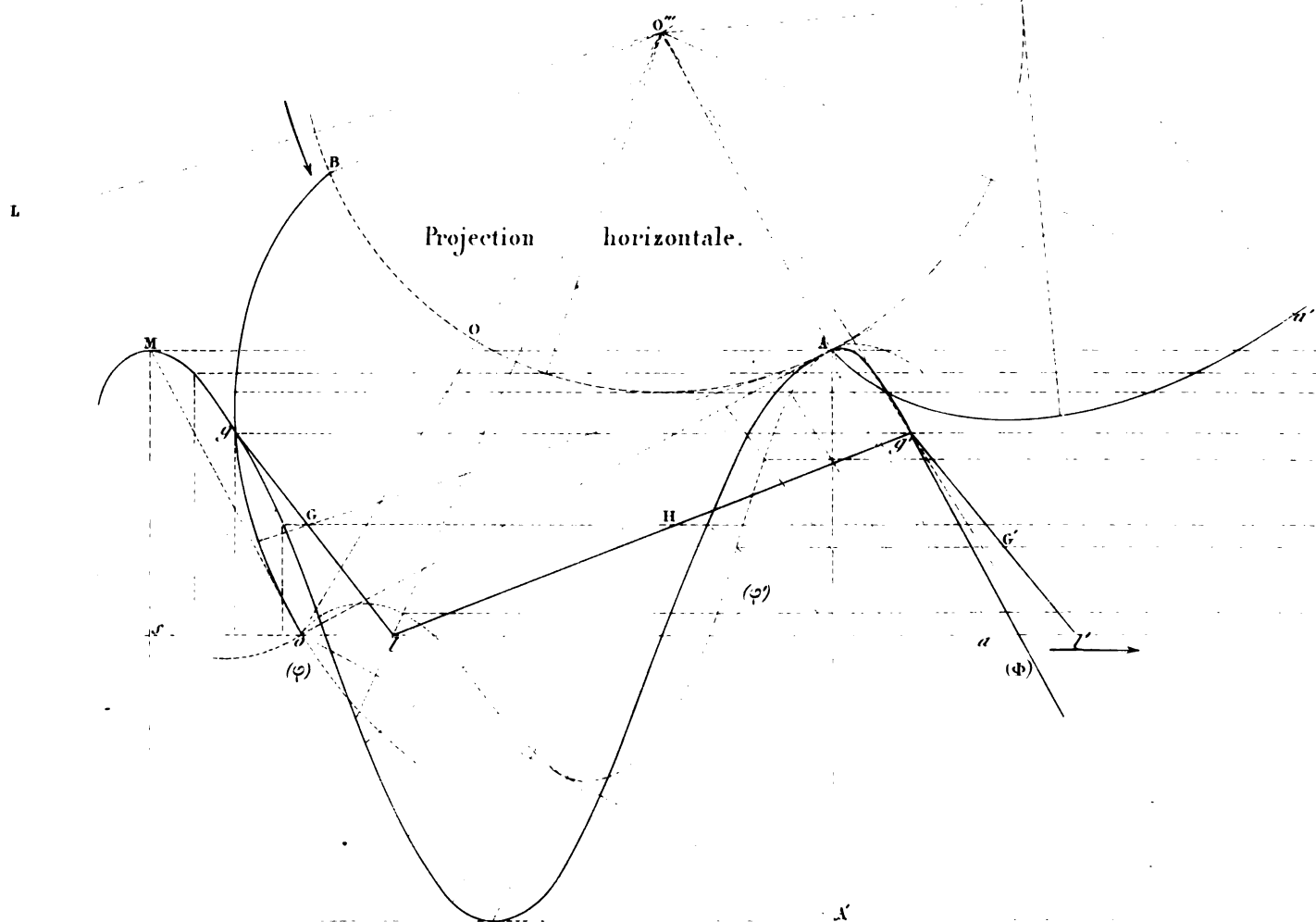
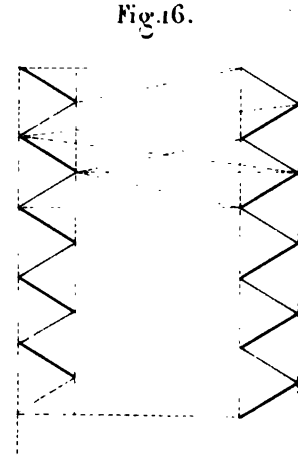
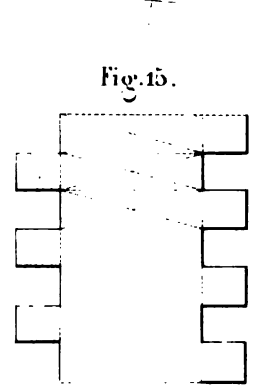
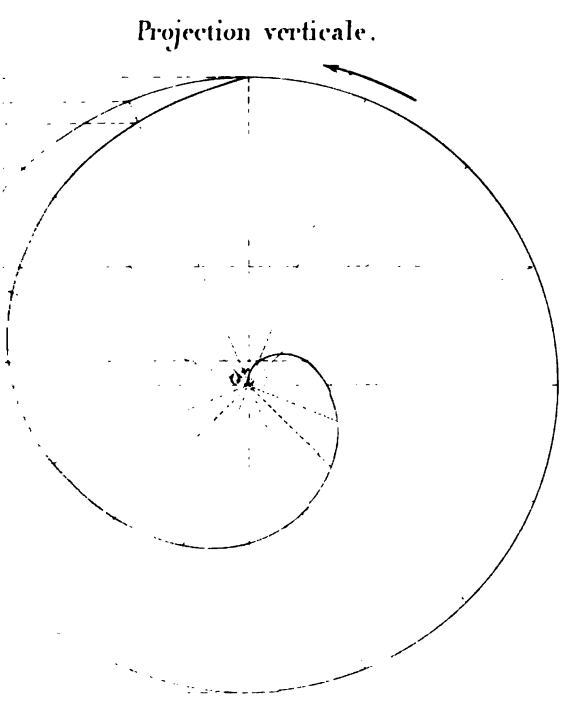
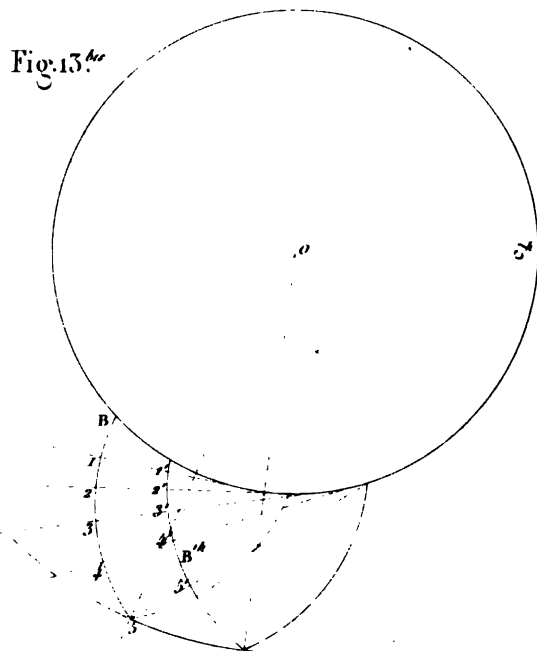
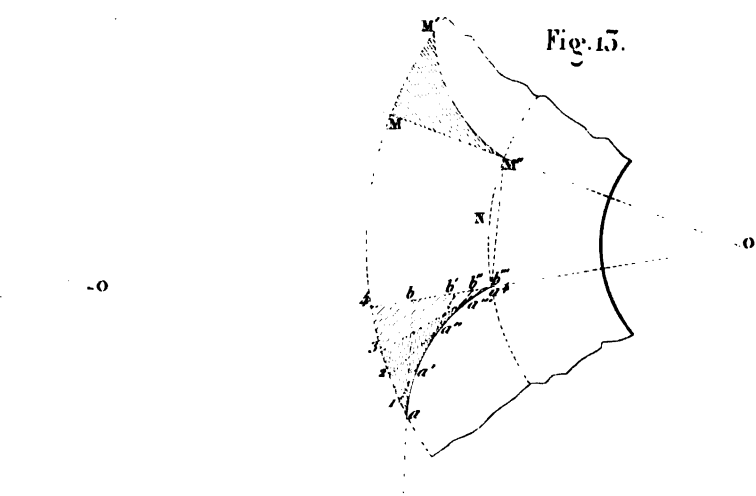
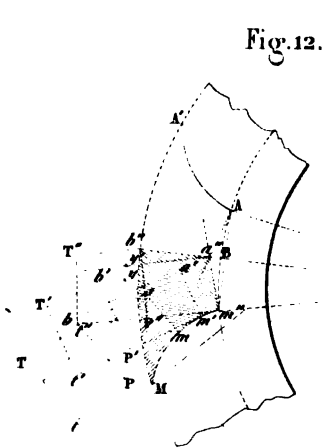
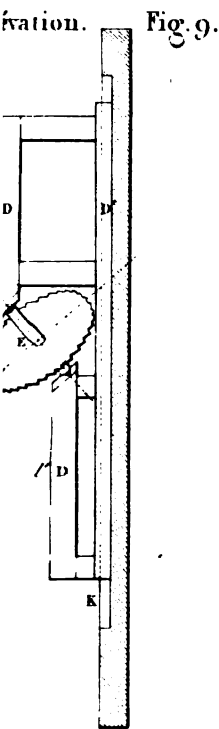
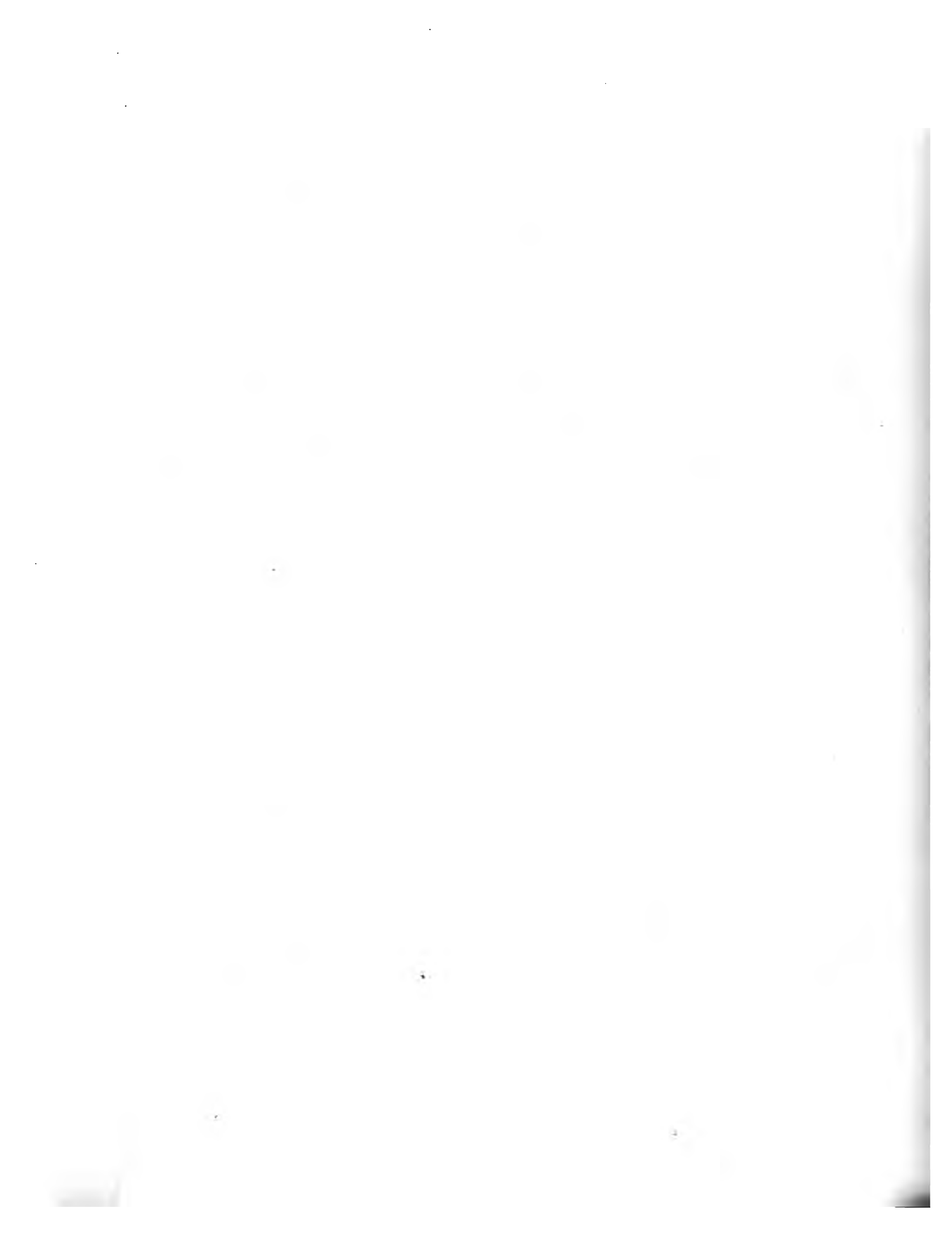


Fig. 14.

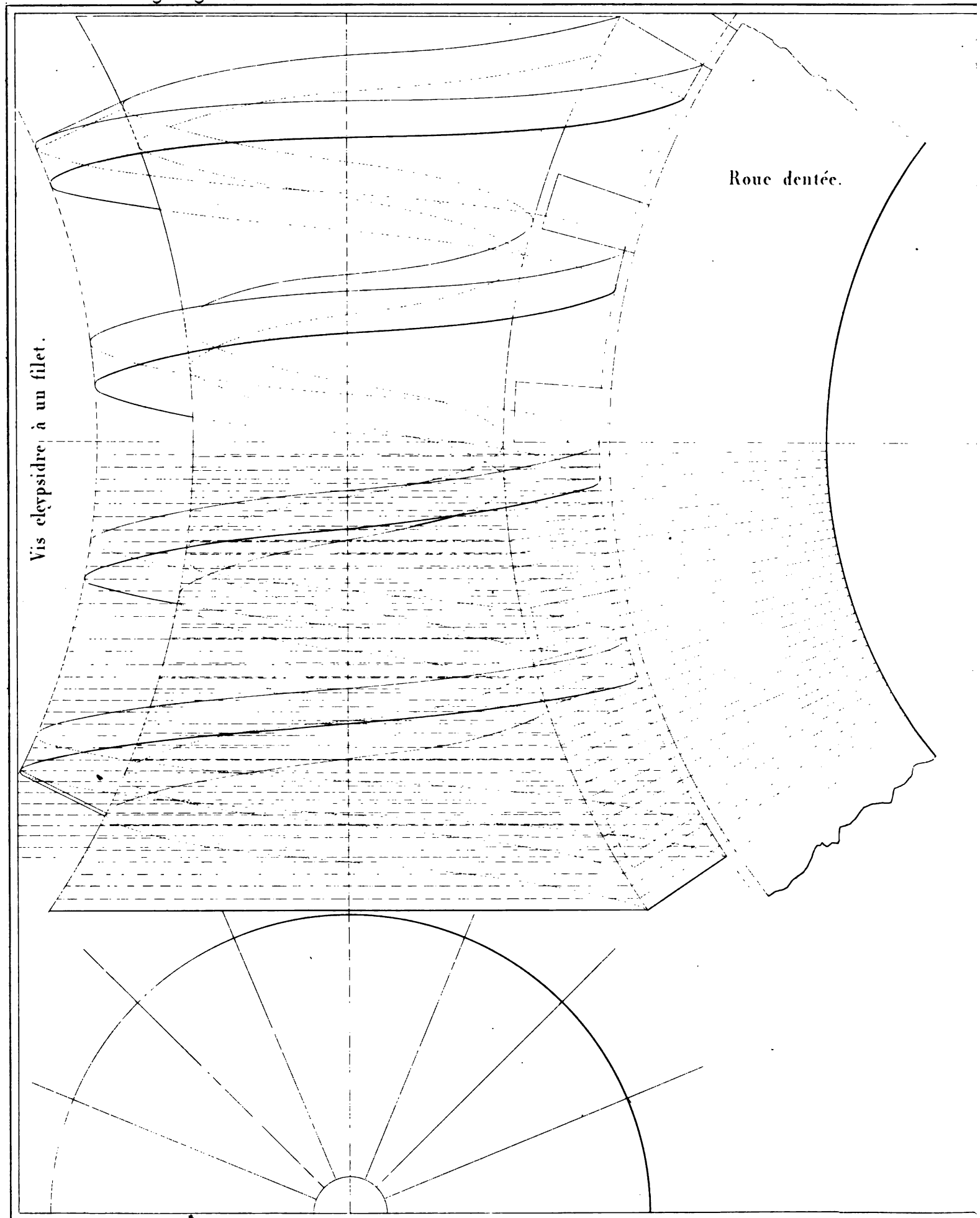


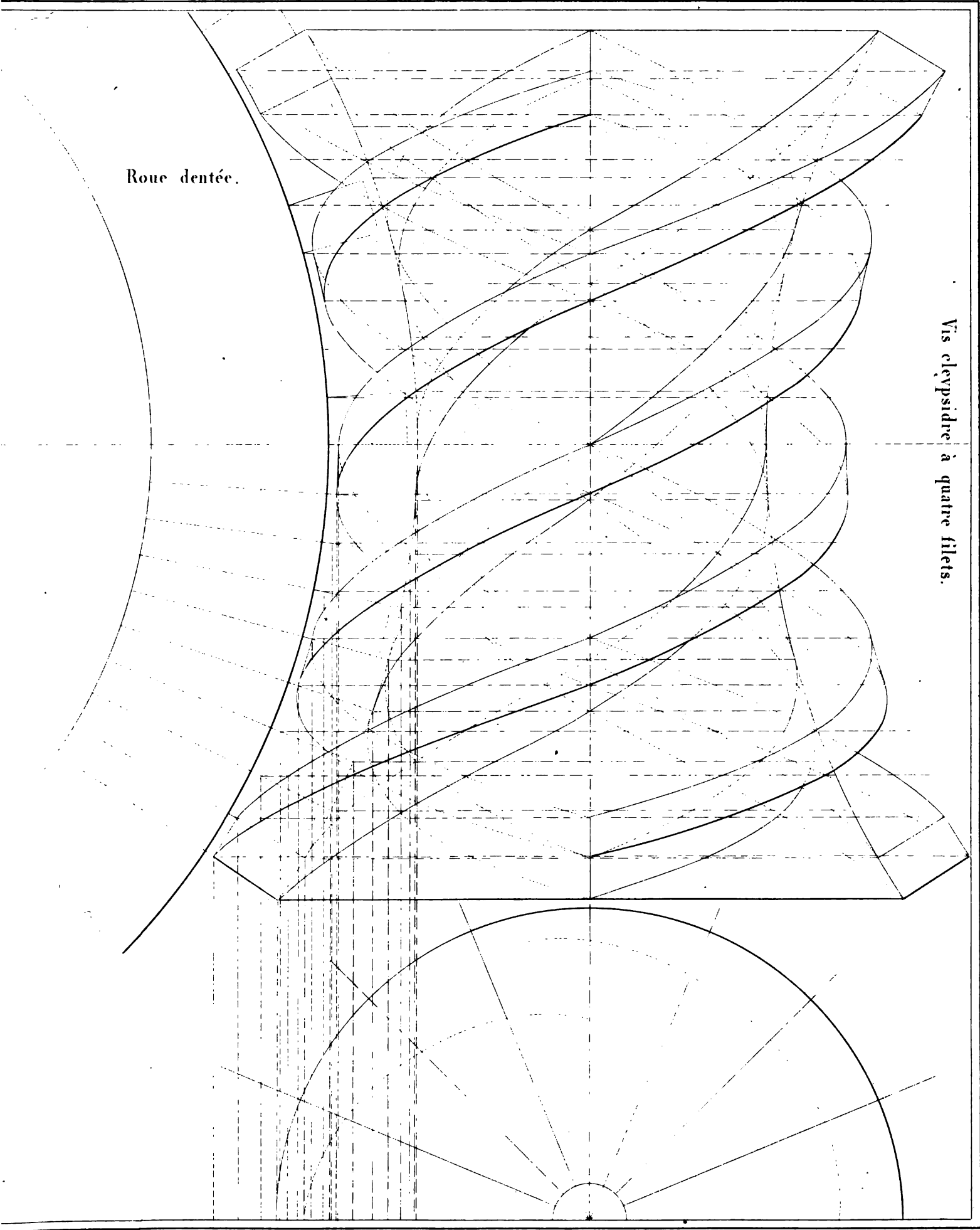






(Mémoire N°10). Engrenage clypsidre.





(Mémoire N° 10). Engrenage clepsydre.

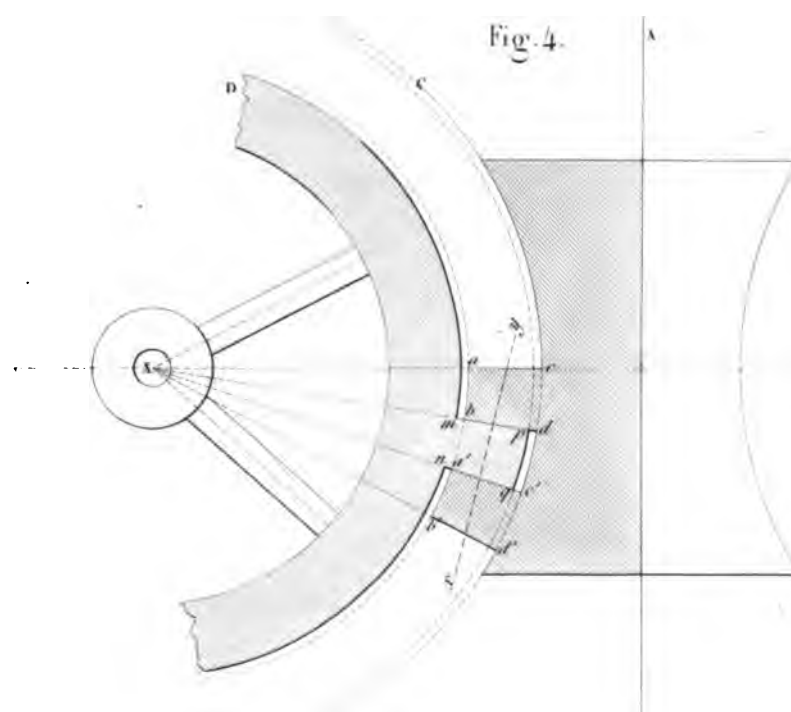
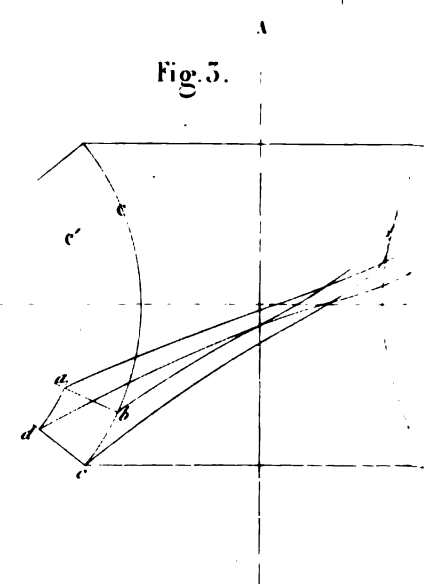
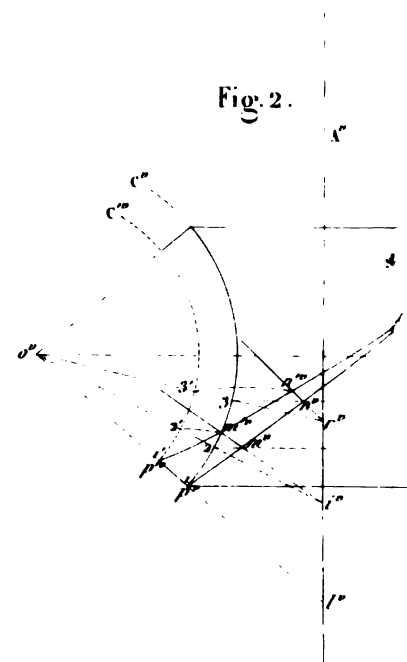
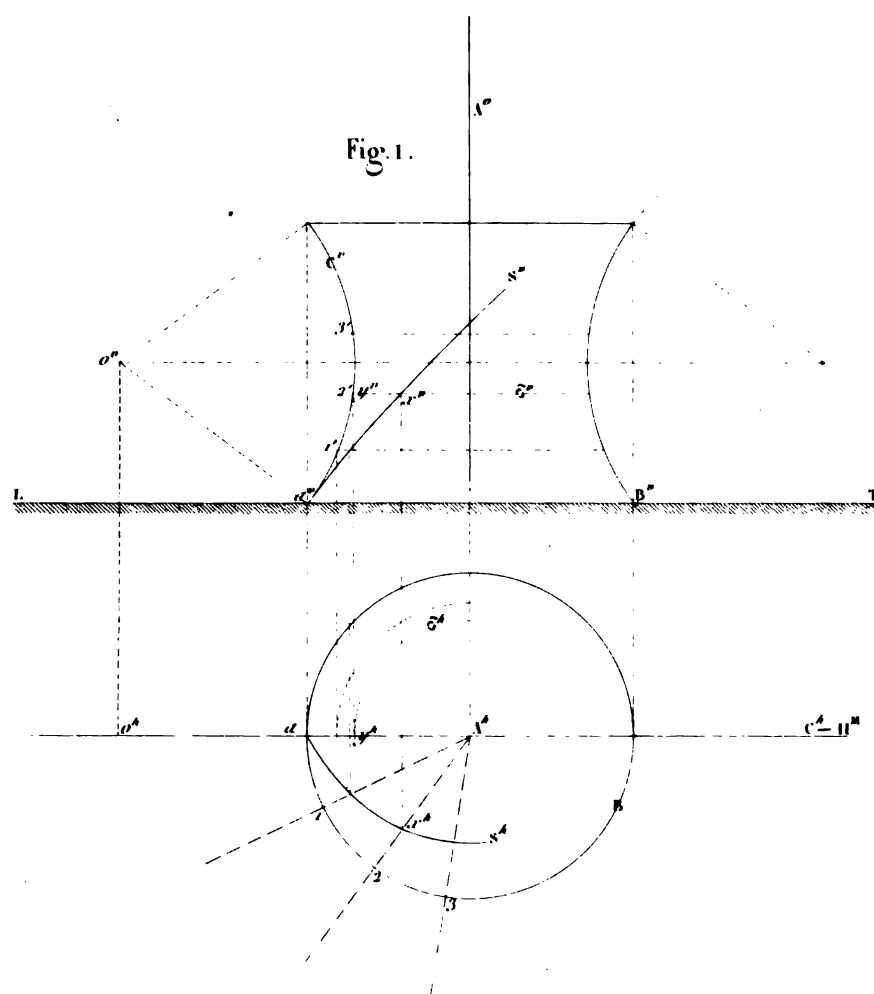


Fig. 5.  
Coupe de la dent de la  
suivant  $A''$





Mémoire N° II.

*Mécanisme servant de support aux Tourillons de la grande Cloche  
de la Cathédrale de Metz.*

Fig. 1.

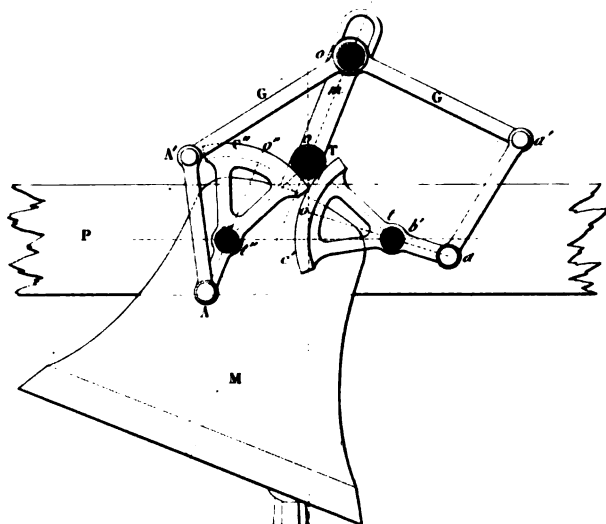


Fig. 2.

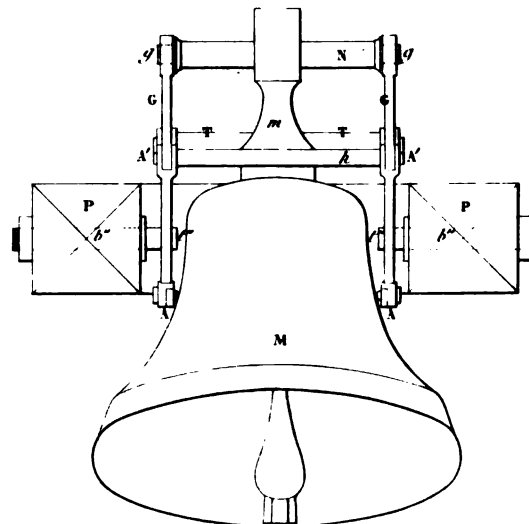


Fig. 4.

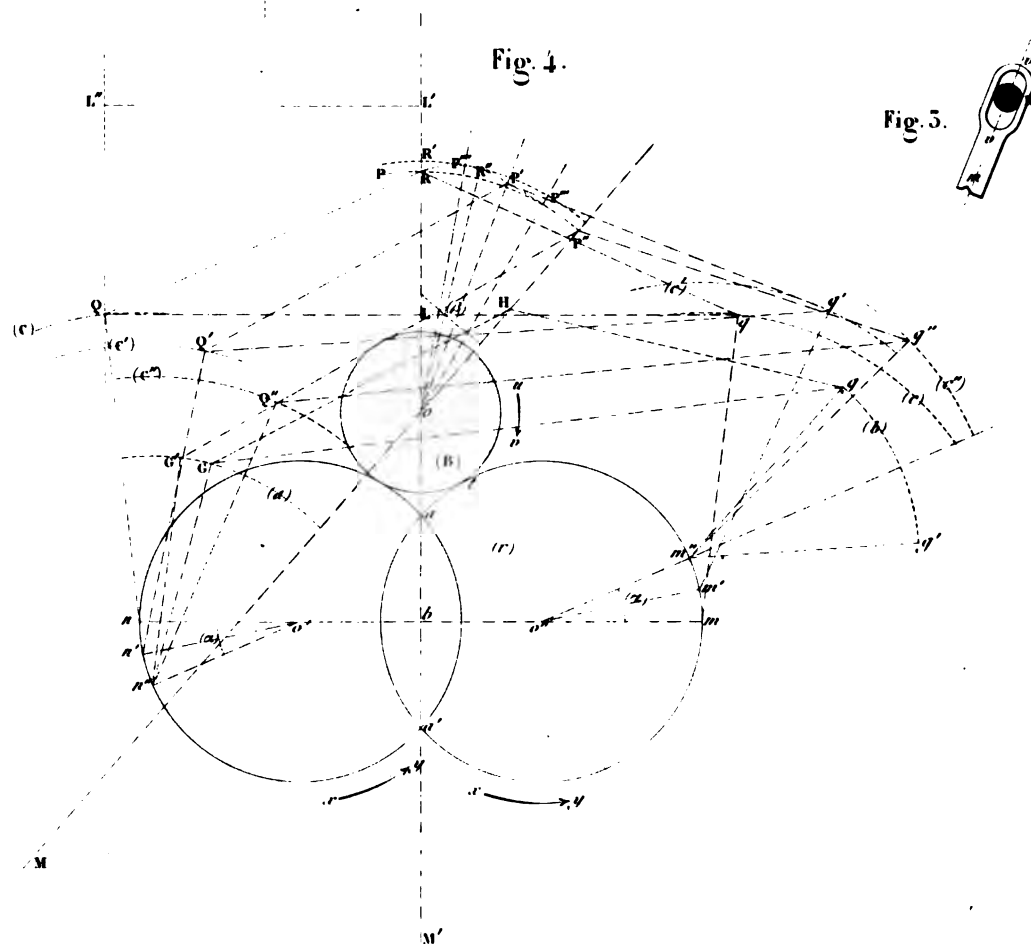


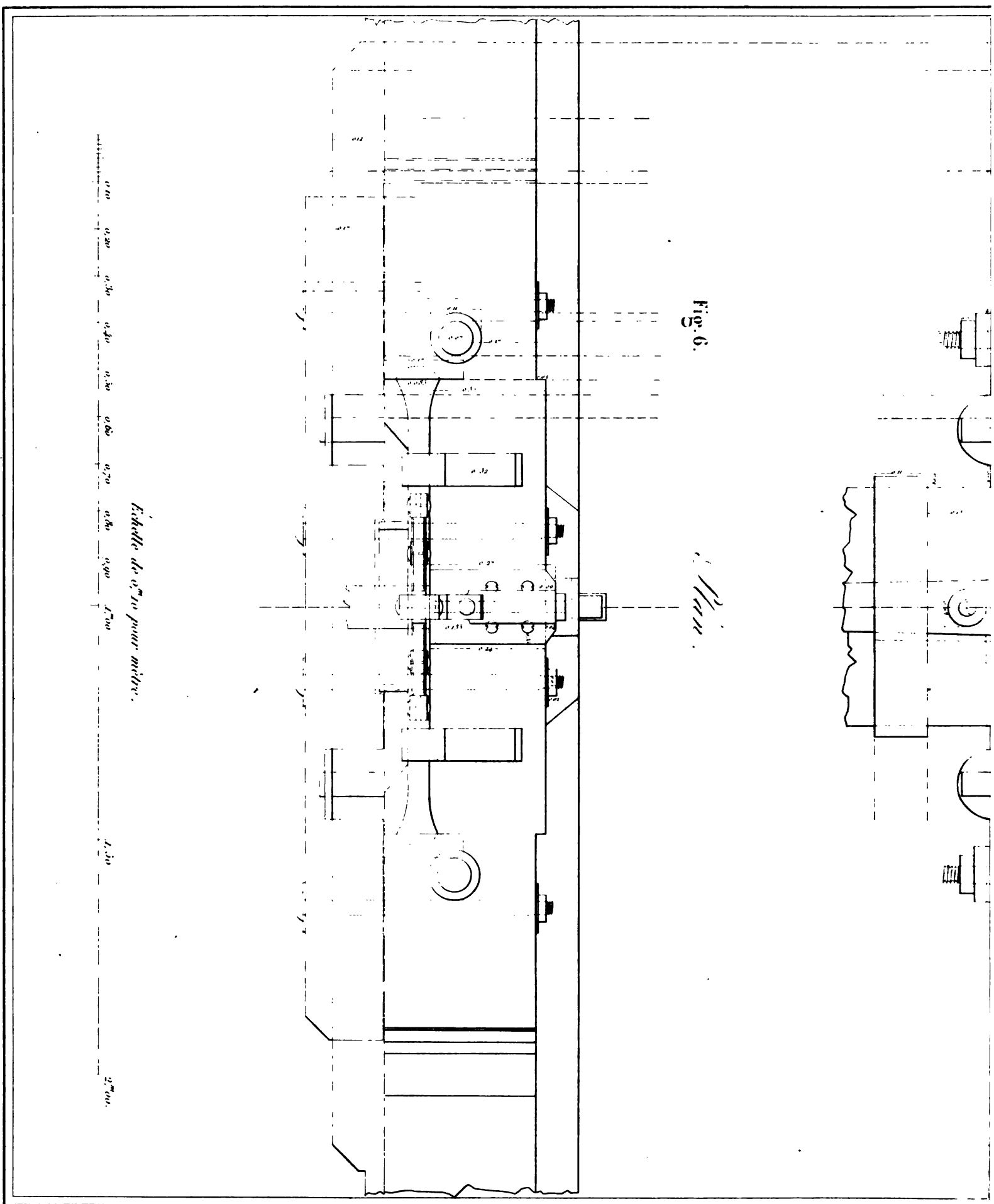
Fig. 5.



de la roue  
M.

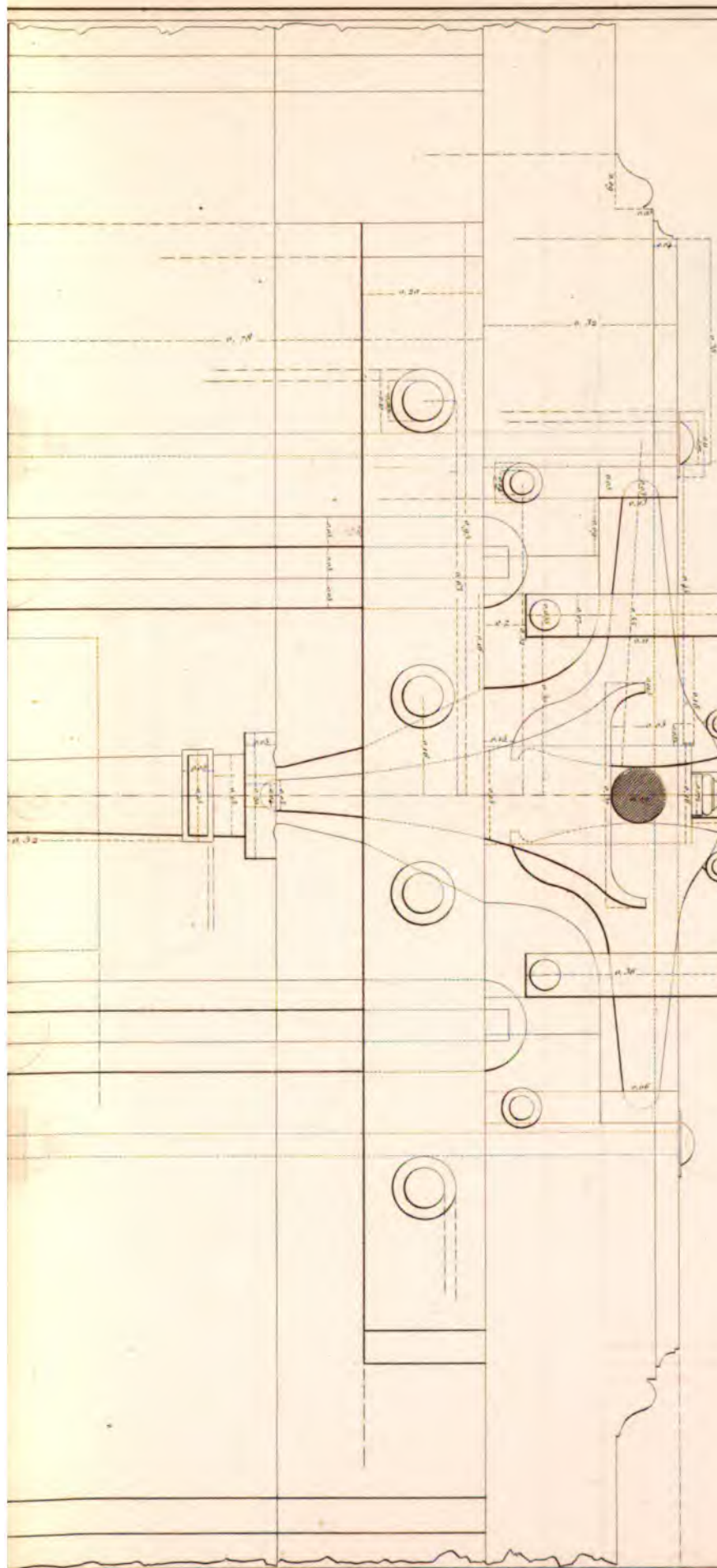
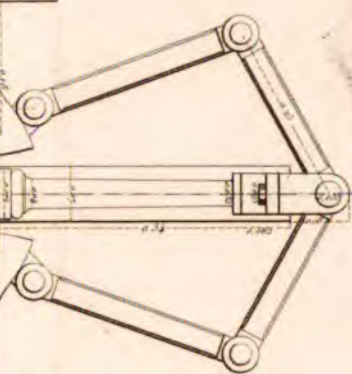






*Nouveau mécanisme servant de support à la grosse Cloche  
de la Cathédrale de Metz.*

Education.



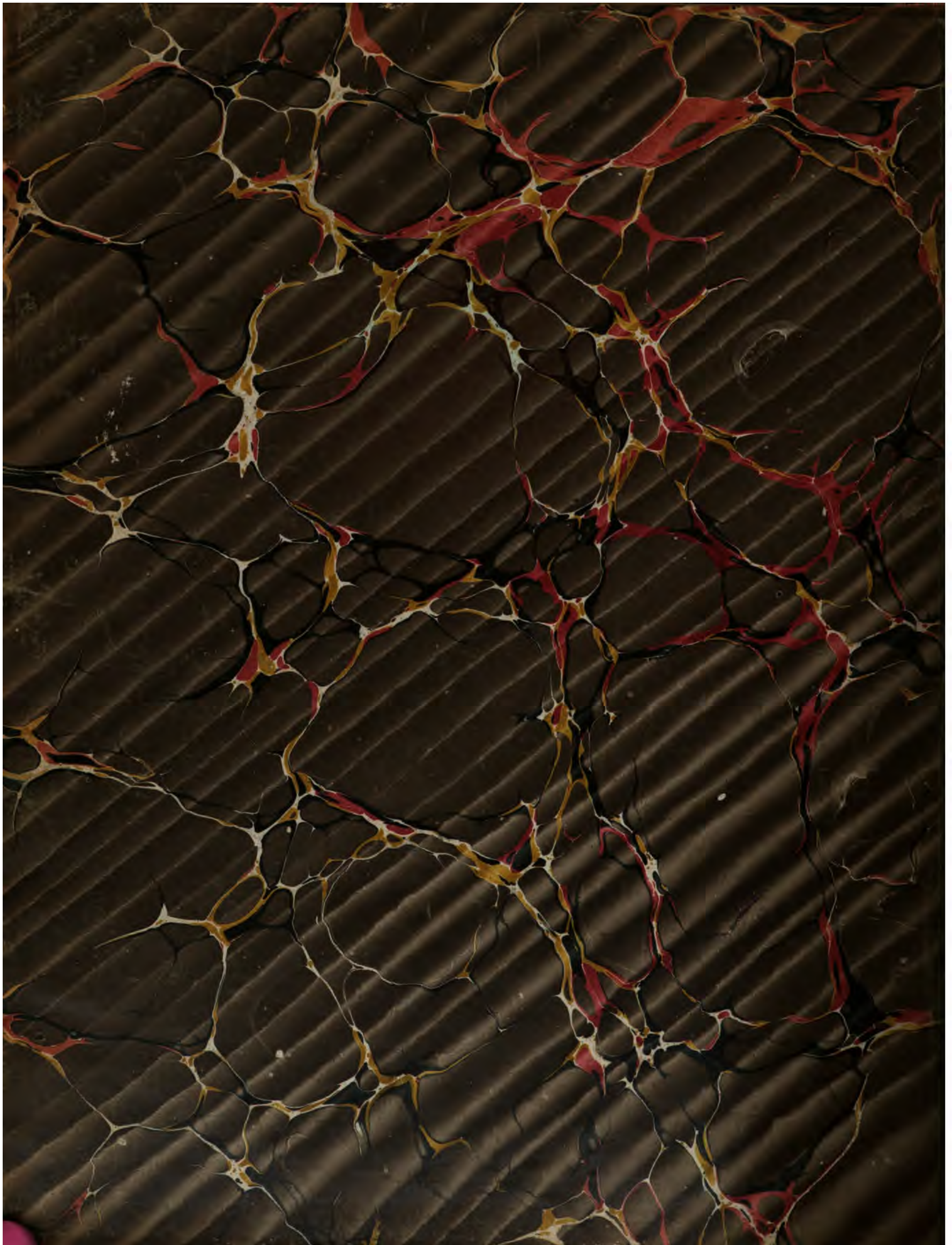




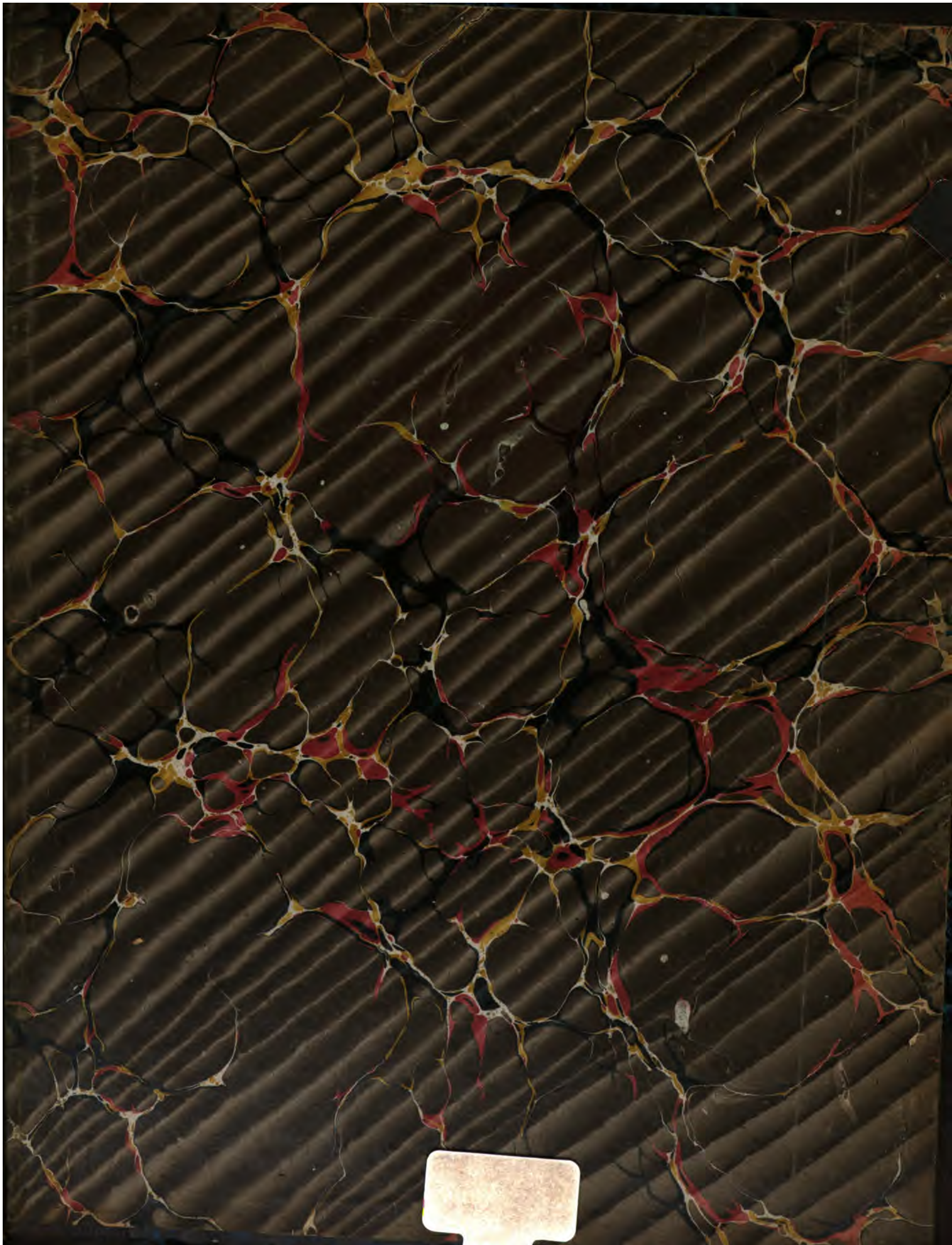
















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